

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: July 11, 2003, 12:44:23 ; Search time 35 seconds  
(without alignments)  
593.917 Million cell updates/sec

Title: US-09-220-617B-217  
Perfect score: 839  
Sequence: 1 MAVGKFLIGSLLLSLQLGQ.....DRHRWQRLPQLSAAACGCGG 156

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

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19: /SID52/gcgdata/geneseq/geneseq-emb1/AA1998.DAT.\*  
20: /SID52/gcgdata/geneseq/geneseq-emb1/AA1999.DAT.\*  
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22: /SID52/gcgdata/geneseq/geneseq-emb1/AA2001.DAT.\*  
23: /SID52/gcgdata/geneseq/geneseq-emb1/AA2002.DAT.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	839	100.0	156	AAV16727	Human pre-pro pers
2	839	100.0	156	AAV92038	Human glial cell d
3	554.5	66.1	183	AAV90563	Human secreted.pro
4	554.5	66.1	183	ABG55476	Human albumin fusi
5	530	63.2	156	AAV16724	Rat mature perseph
6	529	63.1	96	AAV16731	Human persephin pr
7	513	61.1	141	ABG17121	Novel human diagno
8	511	60.9	156	AAV16721	Murine pre-pro per
9	504	60.1	91	AAV16732	WO9914235 Seq ID N
10	492	58.6	89	AAV16733	Human persephin pr

11	492	58.6	89	22	AAB60964	Human persephin.
12	492	58.6	89	22	AAU03924	Human substituted
13	490	58.4	96	22	AAU03951	Human PAP-F2ac ful
14	471.5	56.2	97	22	AAU03950	Human PNP-F2ac ful
15	460.5	54.9	97	22	AAU03949	Human PGP-F2ac ful
16	453	54.0	89	22	AAU03948	Human PAP-F2ac pol
17	452	53.9	185	18	AAW26680	Mature mouse perse
18	452	53.9	185	20	AAV16692	WO9914235 Seq ID N
19	451	53.8	134	18	AAW30067	Mouse persephin.
20	451	53.8	134	20	AAV16663	WO9914235 Seq ID N
21	451	53.8	142	20	AAV16681	WO9914235 Seq ID N
22	447	53.3	185	18	AAW26681	Mature rat perseph
23	447	53.3	185	20	AAV16694	WO9914235 Seq ID N
24	439	52.3	96	18	AAW30066	Mature mouse perse
25	439	52.3	96	20	AAV16723	WO9914235 Seq ID N
26	439	52.3	96	22	AAU03955	Mouse mature perse
27	439	52.3	96	22	AAU03955	WO9914235 Seq ID N
28	434.5	51.8	96	22	AAU03947	Human PNP-F2ac pol
29	433	51.6	96	20	AAV16726	WO9914235 Seq ID N
30	430	51.3	110	22	AAU04453	Murine mutant p-hf
31	425	50.7	91	20	AAV16668	WO9914235 Seq ID N
32	423.5	50.5	90	22	AAU03946	Human PGP-F2ac pol
33	423	50.4	91	18	AAW30068	Mature rat perseph
34	423	50.4	91	20	AAV16665	WO9914235 Seq ID N
35	413	49.2	89	18	AAW30064	Mature mouse perse
36	413	49.2	89	20	AAV16661	WO9914235 Seq ID N
37	413	49.2	89	22	AAU03925	Murine substituted
38	411	49.0	89	18	AAW30065	Mature rat perseph
39	411	49.0	89	20	AAV16664	WO9914235 Seq ID N
40	411	49.0	89	22	AAU03926	Rat substituted pe
41	393	46.8	108	22	AAU03938	Murine His-FLAG-PA
42	388	46.2	89	22	AAU03939	Murine PAP-F2ac po
43	379.5	45.2	109	22	AAU03936	Murine His-FLAG-PN
44	374.5	44.5	90	22	AAU03937	Murine PNP-F2ac po
45	364.5	43.4	109	22	AAU03934	Murine His-FLAG-PG

#### ALIGNMENTS

#### RESULT 1

AAV16727  
ID AAV16727 standard; Peptide; 156 AA.

XX AAV16727;

XX 17-AUG-1999 (first entry)

XX Human pre-pro persephin.

XX Growth factor; GF; persephin; neuron growth; cellular degeneration;  
XX peripheral neuropathy; amyotrophic lateral sclerosis; ischemic stroke;  
XX Alzheimer's disease; Parkinson's disease; Huntington's disease; trauma;  
XX brain injury; spinal cord injury; nervous system tumour; infection;  
XX multiple sclerosis; cardiac muscle degeneration; injury;neurotoxin;  
XX metabolic disease; diabetes; renal dysfunction; neuritin.

OS Homo sapiens.

XX WO9914235-Al.

XX 25-MAR-1999.

XX 15-SEP-1998; 98WO-US19163.

XX 16-SEP-1997; 97US-0931858.

XX (UNIW ) UNIV WASHINGTON.

XX Desauvage F, Johnson EM, Klein R, Kotzbauer PT;

XX Lampe PA, Milbrandt JD;

XX WO9914235 Seq ID N

XX WPI; 1999-244023/20.

DR N-PSDB: AAX60507.  
 XX New isolated persephin growth factor nucleic acids used to, e.g.  
 PT promote neuronal growth  
 PT  
 XX  
 PS Claim 5a; Page 204; 222pp; English.  
 XX  
 CC The invention relates to a novel isolated and purified growth factor (GF)  
 CC that comprises persephin or a fragment or a conservatively substituted  
 CC variant. The persephin GF polypeptides can promote the survival and  
 CC growth of neurons and non-neuronal cells. The persephin GF polypeptides  
 CC or polynucleotides can be used for preventing or treating cellular  
 CC degeneration or insufficiency, e.g. neuronal degeneration resulting from  
 CC peripheral neuropathy, amyotrophic lateral sclerosis, Alzheimer's  
 CC disease, Parkinson's disease, Huntington's disease, ischemic stroke,  
 CC acute brain injury, acute spinal cord injury, nervous system tumors,  
 CC multiple sclerosis, or infection, hematopoietic cell degeneration or  
 CC insufficiency resulting from eosinopenia, anemias, thrombocytopenia, or  
 CC stem-cell insufficiencies, cardiac muscle degeneration or insufficiency  
 CC resulting from cardiomyopathy or congestive heart failure. They can also  
 CC be used for treating e.g. peripheral nerve trauma or injury, exposure to  
 CC neurotoxins, metabolic diseases such as diabetes or renal dysfunctions  
 CC and damage caused by infectious agents. The GF can also be used for  
 CC promoting the growth and/or differentiation of a cell in a culture  
 CC medium. The antisense polynucleotides can be used for treating a disease  
 CC condition mediated by expression of persephin by a population of cells.  
 CC The products can also be used for detection and diagnosis.  
 XX  
 XX Sequence 156 AA;  
 SQ  
 Query Match 100.0%; Score 839; DB 20; Length 156;  
 Best Local Similarity 100.0%; Pred. No. 1.3e-81;  
 Matches 156; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 OY 1 MAVKFLGSLLSLQLGGGPDARGVPVADGFSSQVAKAGGTWLGTHRPLRLRR 60  
 DB 1 MAVKFLGSLLSLQLGGGPDARGVPVADGFSSQVAKAGGTWLGTHRPLRLRR 60  
 OY 61 ALSGPCOLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTOGLALARLOGQGRAHG 120  
 DB 61 ALSGPCOLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTOGLALARLOGQGRAHG 120  
 OY 121 GPCCRPTRYTDVAFLLDRHRWQLPQLSAAACGGG 156  
 DB 121 GPCCRPTRYTDVAFLLDRHRWQLPQLSAAACGGG 156  
 AC AAY92038;  
 XX  
 XX 19-JUL-2000 (first entry)  
 DE Human glial cell derived factor (GDNF), Persephin subunit.  
 XX human glial cell derived factor; GDNF; Persephin; CKGF; mutant;  
 KW cysteine knot growth factor; hairpin loop; infertility.  
 XX  
 OS Homo sapiens.  
 XX  
 FH Key Location/Qualifiers  
 FT Misc-difference 1..69  
 FT /note= "optionally mutated to increase electrostatic  
 FT interaction between beta hairpin structure and  
 FT a receptor"  
 FT  
 FT Domain 70..89  
 FT /label= beta\_hairpin\_loop.1  
 FT /note= "mutant optionally comprises one or more  
 FT substitutions in these residues"  
 FT  
 FT Misc-difference 90..127  
 FT /note= "optionally mutated to increase electrostatic

FT interaction between beta hairpin structure and  
 FT a receptor"  
 FT  
 FT Domain 128..148  
 FT /label= beta\_hairpin\_loop.3  
 FT /note= "mutant optionally comprises one or more  
 FT substitutions in these residues"  
 FT  
 FT Misc-difference 149..156  
 FT /note= "optionally mutated to increase electrostatic  
 FT interaction between beta hairpin structure and  
 FT a receptor"  
 XX  
 PM WO200017360-A1.  
 XX  
 XX 30-MAR-2000.  
 PD  
 XX  
 XX 19-MAR-1999; 99WO-US05908.  
 PF  
 XX  
 XX 22-SEP-1998; 98WO-US19772.  
 PR  
 XX (UYMA-) UNIV MARYLAND BALTIMORE.  
 PA  
 XX Weintraub BD, Szkludlinski MW;  
 XX WPI; 2000-283585/24.  
 DR  
 XX New mutant cysteine knot growth factor proteins comprising one or more  
 PT mutant subunits, useful for treating or preventing diseases e.g.  
 PT hypothyroidism and thyroid cancer  
 PT  
 XX  
 PS Claim 609; Page 314; 320pp; English.  
 XX  
 CC This is the wild type human glial cell derived factor (GDNF), persephin  
 CC subunit.  
 CC Mutants comprise at least one electrostatic charge altering mutation in a  
 CC beta hairpin loop, resulting in increased bioactivity.  
 CC Mutant cysteine knot growth factor (CKGF) proteins comprising one or more  
 CC mutant subunits and having novel properties or improved pharmacological  
 CC properties, compared to wild type CKGFs, are claimed. The CKGF  
 CC superfamily, comprises at least four families of growth factors: the  
 CC glycoprotein hormones, the platelet-derived growth factor (PDGF) family,  
 CC the neurotrophins and the transforming growth factor-beta family; the  
 CC families are known to be structurally similar (especially comprising the  
 CC cysteine knot topology) and it was shown that mutations at certain  
 CC positions in the CKGF hairpin loops of family members and other members  
 CC of the CKGF superfamily could significantly alter the biological  
 CC activities of the CKGF.  
 CC Mutant transforming growth factor family proteins or analogues are useful  
 CC for treatment of ovulatory dysfunction, luteal phase defect, unexplained  
 CC infertility, time-limited conception and in assisted reproduction.  
 CC  
 XX  
 XX Sequence 156 AA;  
 SQ  
 Query Match 100.0%; Score 839; DB 21; Length 156;  
 Best Local Similarity 100.0%; Pred. No. 1.3e-81;  
 Matches 156; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 OY 1 MAVKFLGSLLSLQLGGGPDARGVPVADGFSSQVAKAGGTWLGTHRPLRLRR 60  
 DB 1 MAVKFLGSLLSLQLGGGPDARGVPVADGFSSQVAKAGGTWLGTHRPLRLRR 60  
 OY 61 ALSGPCOLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTOGLALARLOGQGRAHG 120  
 DB 61 ALSGPCOLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTOGLALARLOGQGRAHG 120  
 OY 121 GPCCRPTRYTDVAFLLDRHRWQLPQLSAAACGGG 156  
 DB 121 GPCCRPTRYTDVAFLLDRHRWQLPQLSAAACGGG 156  
 RESULT 3  
 AAB90563  
 ID AAB90563 standard; Protein: 183 AA.  
 XX

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AACB90563;
01-JUN-2001 (first entry)
Human secreted protein, SEQ ID NO: 101.
Human; secreted protein; immunomodulatory; antisclerotic; dermatological; antiinflammatory; anti-HIV; cytostatic; cardiant; vascular; anti-angiogenic; ophthalmological; neuroprotectant; nootropic; anticonvulsant; antiAlzheimers; antiparkinsonian; antimicrobial; vulnerary; vaccine; gene therapy; cancer; protein coordinate data; infection.
Homo sapiens.
WO200121658-A1.
29-MAR-2001.
22-SEP-2000; 2000WO-US26013.
24-SEP-1999; 99US-0155709.
(HUMA-) HUMAN GENOME SCI INC.
PA
PI J. Baker KP, Birse CE, Ebner R, Fiscella M, Komatsoulis GA; Lafleur DW, Moore PA, Olsen HS, Rosen CA, Ruben SA, Soppet DR; Young PE, Wei P, Florence KA;
XX
XX WPI; 2001-235311/24.
DR N-PSDB; AAF97903.
XX
XX Nucleic acids encoding 32 human secreted polypeptides, useful for preventing, diagnosing and/or treating e.g. cancers, Parkinson's disease and diabetic retinopathy - .
XX
XX Claim 11; Page 787; 890pp; English.
XX
XX The present sequence is one of 32 novel human secreted polypeptides. The nucleic acid molecules and polypeptides may be used in the prevention, diagnosis and treatment of diseases such as immune disorders (e.g. multiple sclerosis, systemic lupus erythematosus and human immuno-deficiency virus (HIV) infections), hyperproliferative disorders (e.g. cancers and Gaucher's disease), cardiovascular diseases (e.g. Scimitar syndrome, Chaga's cardiomyopathy and coronary arteriosclerosis), angiogenic disorders (e.g. corneal graft neovascularisation and diabetic retinopathy), neurological disorders (e.g. Huntington's chorea, Alzheimer's disease and Parkinson's disease), infectious diseases and/or for promoting wound healing, regeneration and/or chemotaxis. The nucleic acid molecules may be used to produce the secreted polypeptides. They may also be used as DNA probes in diagnostic assays to detect and quantitate the presence of similar nucleic acid sequences in samples. The polypeptides may be used as antigens in the production of antibodies and in assays to identify modulators of their expression and activity.
XX
XX Sequence 183 AA:
Query Match 66.1%; Score 554.5; DB 22; Length 183;
Best Local Similarity 63.4%; Pred. No. 4e-51.
Matches 118; Conservative 5; Mismatches 30; Indels 33; Gaps 5;
QY 1 MAVGFLGLSLLLSLQLGGGWGPDKGVVADGEFSSQVAKAGTWLGH---RPLA 56
Db | | | | | | | | | | | | | | | | | | | | | | :
| | | | | | | | | | | | | | | | | | | | | | :
1 MAVGFLGLSLLLSLQLGGGWGPDKGVVADGEFSSQVAKAGTWLGHFGQGPSVTS 60
QY 57 LRRRLALS-----GPCOLWSL-----TLSSVAELGLGYASEEKVF 90
Db : : : : : : : : : : : : : : : : : : : : : :
61 QLSPALTLTVSALPSSHRRPPPCXPASPNSNPAYEDPVVRGARFCGLRGCE--VIF 118
QY 91 RYCACSPRGARTOHLALARLQOGQRHGGGCCPRTRYTDVAFDLDRHRWORLDAA 150
Db | | | | | | | | | | | | | | | | | | | | | | :
119 RYCACSPRGARTOHLALARLQOGQRHGGGCCPRTRYTDVAFDLDRHAGCGPCS-SRR 177

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CC neurotoxins, metabolic diseases such as diabetes or renal dysfunctions  
CC and damage caused by infectious agents. The GF can also be used for  
CC promoting the growth and/or differentiation of a cell in a culture  
CC medium. The antisense polynucleotides can be used for treating a disease  
CC condition mediated by expression of persephein by a population of cells.  
CC The products can also be used for detection and diagnosis.

XX Sequence 96 AA;

Query Match 63.1%; Score 529; DB 20; Length 96;  
Best Local Similarity 100.0%; Pred. No. 9.4e-49;  
Matches 96; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 61 ALSGPCQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQHGLALRLQGGCGRAHG 120  
Db 1 ALSGPCQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQHGLALRLQGGCGRAHG 50  
QY 121 GPCCRPTRYTQVAFDDRHQRNLPOLSAACCGG 156  
61 GPCCRPTRTDVAFLDDRRHQRNLPOLSAACCGG 96

## RESULT 7

ABG17121  
ID ABG17121 standard; Protein; 141 AA.

AC ABG17121;

XX 18-FEB-2002 (first entry)

XX Novel human diagnostic protein #17112.

DE Human; chromosome mapping; gene mapping; gene therapy; forensic;  
KW food supplement; medical imaging; diagnostic; genetic disorder.

XX Homo sapiens.

XX WO2001/5067-A2.

XX 11-OCT-2001.

XX 30-MAR-2001; 2001WO-US08631.

XX 31-MAR-2000; 2000US-0540217.

XX 23-AUG-2000; 2000US-0649167.

XX (HYSE-) HYSEQ INC.

XX Drmanac RT, Liu C, Tang YT;

XX WPI: 2001-639362/73.

XX N-PSDB; AAS81308.

XX New isolated polynucleotide and encoded polypeptides, useful in  
PT diagnostics, forensics, gene mapping, identification of mutations  
PT responsible for genetic disorders or other traits and to assess  
PT biodiversity.

XX Claim 20; SEQ ID No 47480; 103pp; English.

XX The invention relates to isolated polynucleotide (I) and  
CC polypeptide (II) sequences. (I) is useful as hybridisation probes,  
CC polymerase chain reaction (PCR) primers, oligomers, and for chromosome  
CC and gene mapping, and in recombinant production of (II). The  
CC polynucleotides are also used in diagnostics as expressed sequence tags  
CC for identifying expressed genes. (I) is useful in gene therapy techniques  
CC to restore normal activity of (II) or to treat disease states involving  
CC (II). (II) is useful for generating antibodies against it, detecting or  
CC quantitating a polypeptide in tissue, as molecular weight markers and as  
CC a food supplement. (II) and its binding partners are useful in medical  
CC imaging of sites expressing (II). (I) and (II) are useful for treating  
CC disorders involving aberrant protein expression or biological activity.  
CC The polypeptide and polynucleotide sequences have applications in

CC diagnostics, forensics, gene mapping, identification of mutations  
CC responsible for genetic disorders or other traits to assess biodiversity  
CC and to produce other types of data and products dependent on DNA and  
CC amino acid sequences. ABG00010-ABG30377 represent novel human  
CC diagnostic amino acid sequences of the invention.  
CC Note: The sequence data for this patent did not appear in the printed  
CC specification, but was obtained in electronic format directly from WIPO  
CC at ftp.wipo.int/pub/published\_pct\_sequences.

XX Sequence 141 AA;

Query Match 61.1%; Score 513; DB 22; Length 141;  
Best Local Similarity 98.0%; Pred. No. 7.7e-47;  
Matches 97; Conservative 0; Mismatches 2; Indels 0; Gaps 0;  
QY 14 LSLQLGGQGWGPDARQVPVADGEFSSEQVAKAGGTWLGTHRPLARLRALSGPCQLWSLTL 73  
Db 43 LGLHLGGQGWGPDARQVPVADGEFSSEQVAKAGGTWLGTHRPLARLRALSGPCQLWSLTL 102  
QY 74 SVAELGLGYASEEKVIFRYCAGSCPRGARTQHGLALRL 112  
Db 103 SVAELGLGYASEEKVIFRYCAGSCPRGARTQHGLALRL 141

## RESULT 8

AAY16721  
ID AAY16721 standard; Peptide; 156 AA.

XX AAY16721;

XX 17-AUG-1999 (first entry)

XX Murine pre-pro persephein sequence.

DE Growth factor; GF; persephein; neuron growth; cellular degeneration;  
KW peripheral neuropathy; amyotrophic lateral sclerosis; ischemic stroke;  
KW Alzheimer's disease; Parkinson's disease; Huntington's disease; trauma;  
KW brain injury; spinal cord injury; nervous system tumour; infection;  
KW multiple sclerosis; cardiac muscle degeneration; injury; neurotoxin;  
KW metabolic disease; diabetes; renal dysfunction; neuriturin.

XX Mus sp.

XX WO9914235-A1.

XX 25-MAR-1999.

XX 15-SEP-1998; 98WO-US19163.

XX 16-SEP-1997; 97US-0931858.

XX (UNIW) UNIV WASHINGTON.

XX Desauvage F, Johnson EM, Klein R, Kotzbauer PT;

XX Lampe PA, Milbrandt JD;

XX WPI: 1999-244023/20.

XX N-PSDB; AAX60489.

XX New isolated persephein growth factor nucleic acids used to, e.g.

XX promote neuronal growth

XX Claim 5; Page 192; 222pp; English.

XX The invention relates to a novel isolated and purified growth factor (GF)  
CC that comprises persephein or a fragment or a conservatively substituted  
CC variant. The persephein GF polypeptides can promote the survival and  
CC growth of neurons and non-neuronal cells. The persephein GF polypeptides  
CC or polynucleotides can be used for preventing or treating cellular  
CC degeneration or insufficiency, e.g. neuronal degeneration resulting from  
CC peripheral neuropathy, amyotrophic lateral sclerosis, Alzheimer's  
CC disease, Parkinson's disease, Huntington's disease, ischemic stroke,  
CC acute brain injury, acute spinal cord injury, nervous system tumours,

CC multiple sclerosis, or infection, hematopoietic cell degeneration or  
 CC insufficiency resulting from eosinopenia, anemias, thrombocytopenia, or  
 CC stem-cell insufficiencies, cardiac muscle degeneration or insufficiency  
 CC resulting from cardiomyopathy or congestive heart failure. They can also  
 CC be used for treating e.g. peripheral nerve trauma or injury, exposure to  
 CC neurotoxins, metabolic diseases such as diabetes or renal dysfunctions  
 CC and damage caused by infectious agents. The GF can also be used for  
 CC promoting the growth and/or differentiation of a cell in a culture  
 CC medium. The antisense polynucleotides can be used for treating a disease  
 CC condition mediated by expression of persephein by a population of cells.  
 CC The products can also be used for detection and diagnosis.

XX Sequence 156 AA;

Query Match 60.9%; Score 511; DB 20; Length 156;  
 Best Local Similarity 64.2%; Pred. No. 1.4e-46;  
 Matches 102; Conservative 16; Mismatches 35; Indels 6; Gaps 3;

QY 1 MAVGKFLGSLLLSLQLGCGNPGDARGVPVADGSESEQYAKAGCTWL---GTHRPLAR 57  
 DB 1 MAAGRLRLCLLLSLHPSLGLWLDLQASVAD-KLSEFKMAETGTTPHGGNNH--VR 57  
 Y 58 LRRALSGCQLWSLTLVAELGLGYASEEKVIFRYCAGSCPRGARTOHGLALARLQOGR 117  
 DB 58 LPRALAGSCLWSLTLVAELGLGYASEEKVIFRYCAGSCPOEARTOHSVLARLGRGR 117  
 QY 118 AHGGPCCRPTRYTDVAFLLDRHRWORLDLSAAACGCG 156  
 DB 118 AHGRPCCGTPTSYADVTFLDDQHHWQLPQLSAAACGCG 156

RESULT 9  
 AAY16732  
 ID AAY16732 standard; Peptide; 91 AA.

AC AAY16732;

DT 17-AUG-1999 (first entry)

DE WO9914235 Seq ID No: 231.

DE Growth factor; GF; persephein; neuron growth; cellular degeneration;  
 KW peripheral neuropathy; amyotrophic lateral sclerosis; ischemic stroke;  
 KW Alzheimer's disease; Parkinson's disease; Huntington's disease; trauma;  
 KW brain injury; spinal cord injury; nervous system tumour; infection;  
 KW multiple sclerosis; cardiac muscle degeneration; injury; neurotoxin;  
 KW metabolic disease; diabetes; renal dysfunction; neurturin.

XX Unidentified.

OS WO9914235-Al.

XX 25-MAR-1999.

XX 15-SEP-1998; 98WO-US19163.

XX 16-SEP-1997; 97US-0931858.

XX (UNIW ) UNIV WASHINGTON.

XX Desauvage F, Johnson EM, Klein R, Kotzbauer PT;  
 PI Lampe PA, Milbrandt JD;

XX WPI: 1999-244023/20.

XX New isolated persephein growth factor nucleic acids used to, e.g.  
 PT promote neuronal growth

PS Disclosure; Page 206; 222pp; English.

XX The invention relates to a novel isolated and purified growth factor (GF)  
 CC that comprises persephein or a fragment or a conservatively substituted  
 CC variant. The persephein GF polypeptides can promote the survival and

CC growth of neurons and non-neuronal cells. The persephein GF polypeptides  
 CC or polynucleotides can be used for preventing or treating cellular  
 CC degeneration or insufficiency, e.g. neuronal degeneration resulting from  
 CC peripheral neuropathy, amyotrophic lateral sclerosis, Alzheimer's  
 CC disease, Parkinson's disease, Huntington's disease, ischemic stroke,  
 CC acute brain injury, acute spinal cord injury, nervous system tumours,  
 CC multiple sclerosis, or infection, hematopoietic cell degeneration or  
 CC insufficiency resulting from eosinopenia, anemias, thrombocytopenia, or  
 CC stem-cell insufficiencies, cardiac muscle degeneration or insufficiency  
 CC resulting from cardiomyopathy or congestive heart failure. They can also  
 CC be used for treating e.g. peripheral nerve trauma or injury, exposure to  
 CC neurotoxins, metabolic diseases such as diabetes or renal dysfunctions  
 CC and damage caused by infectious agents. The GF can also be used for  
 CC promoting the growth and/or differentiation of a cell in a culture  
 CC medium. The antisense polynucleotides can be used for treating a disease  
 CC condition mediated by expression of persephein by a population of cells.  
 CC The products can also be used for detection and diagnosis.

XX Sequence 91 AA;

Query Match 60.1%; Score 504; DB 20; Length 91;  
 Best Local Similarity 100.0%; Pred. No. 4.1e-46;  
 Matches 91; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 66 COLWSLTLVAELGLGYASEEKVIFRYCAGSCPRGARTOHGLALARLQOGRHGGPCR 125  
 DB 1 COLWSLTLVAELGLGYASEEKVIFRYCAGSCPRGARTOHGLALARLQOGRHGGPCR 60  
 QY 126 PTRYTDVAFLLDRHRWORLDLSAAACGCG 156  
 DB 61 PTRYTDVAFLLDRHRWORLDLSAAACGCG 91

RESULT 10  
 AAY16733  
 ID AAY16733 standard; Peptide; 89 AA.

AC AAY16733;

DT 17-AUG-1999 (first entry)

DE Human persephein protein.

DE Growth factor; GF; persephein; neuron growth; cellular degeneration;  
 KW peripheral neuropathy; amyotrophic lateral sclerosis; ischemic stroke;  
 KW Alzheimer's disease; Parkinson's disease; Huntington's disease; trauma;  
 KW brain injury; spinal cord injury; nervous system tumour; infection;  
 KW multiple sclerosis; cardiac muscle degeneration; injury; neurotoxin;  
 KW metabolic disease; diabetes; renal dysfunction; neurturin.

XX Homo sapiens.

XX WO9914235-Al.

XX 25-MAR-1999.

XX 15-SEP-1998; 98WO-US19163.

XX 16-SEP-1997; 97US-0931858.

XX (UNIW ) UNIV WASHINGTON.

XX Desauvage F, Johnson EM, Klein R, Kotzbauer PT;  
 PI Lampe PA, Milbrandt JD;

XX WPI: 1999-244023/20.

XX New isolated persephein growth factor nucleic acids used to, e.g.  
 PT promote neuronal growth

PS Claim 2; Page 206-207; 222pp; English.

XX The invention relates to a novel isolated and purified growth factor (GF)

that comprises persephin or a fragment or a conservatively substituted variant. The persephin GF polypeptides can promote the survival and growth of neurons and non-neuronal cells. The persephin GF polypeptides or polynucleotides can be used for preventing or treating cellular degeneration or insufficiency, e.g. neuronal degeneration resulting from peripheral neuropathy, amyotrophic lateral sclerosis, Alzheimer's disease, Parkinson's disease, Huntington's disease, ischemic stroke, acute brain injury, acute spinal cord injury, nervous system tumours, multiple sclerosis, or infection, hematopoietic cell degeneration or insufficiency resulting from eosinopenia, anemias, thrombocytopenia, or stem-cell insufficiencies, cardiac muscle degeneration or insufficiency resulting from cardiomyopathy or congestive heart failure. They can also be used for treating e.g. peripheral nerve trauma or injury, exposure to neurotoxins, metabolic diseases such as diabetes or renal dysfunctions and damage caused by infectious agents. The GF can also be used for promoting the growth and/or differentiation of a cell in a culture medium. The antisense polynucleotides can be used for treating a disease condition mediated by expression of persephin by a population of cells. The products can also be used for detection and diagnosis.

Sequence 89 AA;

Query Match 58.6%; Score 492; DB 20; Length 89;

Best Local Similarity 100.0%; Pred. No. 7.6e-45; Matches 89; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 66 COLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQHGCLALARLOGGGRAGHGPCCR 125  
DB 1 COLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQHGCLALARLOGGGRAGHGPCCR 60  
QY 126 PRTYDVAFLDDRHWRLPOLSAACGC 154  
DB 61 PRTYDVAFLDDRHWRLPOLSAACGC 89

RESULT 11

AAB60964

ID AAB60964 standard; Protein; 89 AA.

AC AAB60964;

DT 10-DEC-2001 (first entry)

DE Human persephin.

KW Human; glial cell line-derived growth factor; GDNF; corneal defect; epidermal healing; wound healing; wound healing disorder; scarring; gene therapy; neurturin; persephin; artemin.

OS Homo sapiens.

PN WO200130375-A2.

PD 03-MAY-2001.

PF 30-OCT-2000; 2000WO-EP10674.

PR 29-OCT-1999; 99EP-0121597.

PA (BIOP-) BIOPHARM GES BIOTECHNOLOGISCHEN ENTWICKL.

PI Hanke M, Kruse F, Paulista M, Pohl J;

DR WPI; 2001-316290/33.

XX Use of glial cell line-derived growth factor for epidermal and stromal wound healing, and treating wound healing or scarring disorders, particularly for treating corneal defects

PS Disclosure; Fig 1; 60pp; English.

XX The present invention describes the use of glial cell line-derived growth factor (GDNF) or a derivative in the manufacture of pharmaceutical

CC compositions for epidermal and wound healing, the treatment of epidermal and stromal wound healing disorders and scarring disorders. In particular, they are useful for treating corneal defects. Alternatives to GDNF are neurturin, persephin and artemin. The present sequence is the human persephin protein.

XX Sequence 89 AA;

Query Match 58.6%; Score 492; DB 22; Length 89;

Best Local Similarity 100.0%; Pred. No. 7.6e-45; Matches 89; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 66 COLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQHGCLALARLOGGGRAGHGPCCR 125  
DB 1 COLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQHGCLALARLOGGGRAGHGPCCR 60  
QY 126 PRTYDVAFLDDRHWRLPOLSAACGC 154  
DB 61 PRTYDVAFLDDRHWRLPOLSAACGC 89

RESULT 12

AAU03924

ID AAU03924 standard; Protein; 89 AA.

AC AAU03924;

DT 23-OCT-2001 (first entry)

DE Human substituted persephin polypeptide.

KW Persephin; F2a; F2c; GDNF; neurturin; artemin; human; mouse; rat; AIDS; growth factor receptor alpha-Ret protein tyrosine kinase; GFRA1phal-Ret; trophic support; peripheral neuropathy; amyotrophic lateral sclerosis; Alzheimer's disease; Parkinson's disease; Huntington's disease; diabetes; acquired immunodeficiency syndrome; ischaemic stroke; acute brain injury; acute spinal cord injury; multiple sclerosis; nervous system tumour; neuroblastoma; enteric disease; idiopathic constipation; eosinopenia; basopenia; lymphopenia; monocytopenia; neutropenia; anaemia; cardiac muscle degeneration; congestive heart failure; thrombocytopaenia.

OS Homo sapiens.

PN WO200147946-A2.

PD 05-JUL-2001.

PF 21-DEC-2000; 2000WO-US34852.

PR 28-DEC-1999; 99US-0473551.

PA (UNIW ) UNIV WASHINGTON.

PI Milbrandt JD, Baloh RH;

DR WPI; 2001-425618/45.

XX New growth factor that activates growth factor receptor alpha-Ret protein-tyrosine kinase, for providing trophic support to a mammalian cell and producing differentiation of a mammalian cell in a patient

Claim 4; Page 45; 73pp; English.

XX The sequence represents a human persephin protein, which can have substituted residues in its F2a and/or F2c regions. The substitutions are from the F2a and F2c regions of the proteins GDNF, neurturin and artemin, from humans, mice or rats. This type of protein activates the growth factor receptor alpha-Ret protein-tyrosine kinase (GFRA1phal-Ret), but does not substantially activate GFRA1phal2-Ret or GFRA1phal3-Ret. The growth factors and nucleic acids encoding them are useful for providing trophic support to a mammalian cell and/or for producing differentiation of a mammalian cell, in a patient suffering from peripheral neuropathy, amyotrophic lateral sclerosis, Alzheimer's disease, Parkinson's disease,

CC Huntington's disease, diabetes, acquired immunodeficiency syndrome  
 CC (AIDS), ischaemic stroke, acute brain injury, acute spinal cord injury,  
 CC multiple sclerosis, nervous system tumours (e.g. neuroblastomas), or  
 CC enteric diseases such as idiopathic constipation. The sequences are also  
 CC useful for preventing or treating cellular degeneration or insufficiency  
 CC in an individual, suffering from eosinopenia, basopenia, lymphopenia,  
 CC monocytopenia, neutropenia, anaemia, thrombocytopenia, cardiac muscle  
 CC degeneration, or congestive heart failure. The growth factors are also  
 CC useful for promoting the survival of peripheral and central neuronal  
 CC populations in vivo or in vitro.  
 XX  
 XX Sequence 89 AA;

Query Match 58.6%; Score 492; DB 22; Length 89;  
 Best Local Similarity 100.0%; Pred. No. 7.6e-45;  
 Matches 89; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 66 COLMSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTOHGLALARLOGGGRAGGCCCR 125  
 DB 1 COLMSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTOHGLALARLOGGGRAGGCCCR 60  
 126 PTRYTDVAFLLDRHRWQRLPOLSAACGC 154  
 DB 61 PTRYTDVAFLLDRHRWQRLPOLSAACGC 89

RESULT 13  
 AAU03951  
 ID AAU03951 standard; Protein: 96 AA.

XX AC AAU03951;  
 XX DT 23-OCT-2001 (first entry)  
 XX DE Human PAP-F2ac full-length polypeptide.  
 XX KW Persephin; F2a; F2c; GDNF; neurturin; artemin; human; mouse; rat; AIDS;  
 KW growth factor receptor alphas-RET protein tyrosine kinase; GFRA1-Ret;  
 KW trophic support; peripheral neuropathy; amyotrophic lateral sclerosis;  
 KW Alzheimer's disease; Parkinson's disease; Huntington's disease; diabetes;  
 KW acquired immunodeficiency syndrome; ischaemic stroke; acute brain injury;  
 KW acute spinal cord injury; multiple sclerosis; nervous system tumour;  
 KW neuroblastoma; enteric disease; idiopathic constipation; eosinopenia;  
 KW basopenia; lymphopenia; monocytopenia; neutropenia; anaemia;  
 KW cardiac muscle degeneration; congestive heart failure; thrombocytopenia;  
 KW mutant; mutelin.

Chimeric - Homo sapiens.

Key Location/Qualifiers  
 Region 68..72  
 /note= "Human artemin F2a region"  
 Region 82..88  
 /note= "Human artemin F2c region"

WO200147946-A2.

05-JUL-2001.

21-DEC-2000; 2000WO-US34852.

28-DEC-1999; 99US-0473551.

(UNIV ) UNIV WASHINGTON.

Milbrandt JD, Baloh RH;

WPI; 2001-425618/45.

XX New growth factor that activates growth factor receptor alphas-RET  
 PT protein-tyrosine kinase, for providing trophic support to a mammalian  
 PT cell and producing differentiation of a mammalian cell in a patient -  
 XX

PS The sequence represents a human persephin full-length protein, whereby  
 XX the F2a and F2c regions have amino acid substitutions from the F2a and  
 CC F2c regions of artemin protein. Persephin can have substitutions from  
 CC the F2a and F2c regions of the proteins GDNF, neurturin and artemin, from  
 CC humans, mice or rats. This type of protein activates the growth factor  
 CC receptor alphas-RET protein-tyrosine kinase (GFRA1-Ret), but does not  
 CC substantially activate GFRA2-Ret or GFRA3-Ret. The growth factors  
 CC and nucleic acids encoding them are useful for providing trophic support  
 CC to a mammalian cell and/or for producing differentiation of a mammalian  
 CC cell, in a patient suffering from peripheral neuropathy, amyotrophic  
 CC lateral sclerosis, Alzheimer's disease, Parkinson's disease, Huntington's  
 CC disease, diabetes, acquired immunodeficiency syndrome (AIDS), ischaemic  
 CC stroke, acute brain injury, acute spinal cord injury, multiple sclerosis,  
 CC nervous system tumours (e.g. neuroblastomas), or enteric diseases such as  
 CC idiopathic constipation. The sequences are also useful for preventing or  
 CC treating cellular degeneration or insufficiency in an individual,  
 CC suffering from eosinopenia, basopenia, lymphopenia, monocytopenia,  
 CC neutropenia, anaemia, thrombocytopenia, cardiac muscle degeneration, or  
 CC congestive heart failure. The growth factors are also useful for  
 CC promoting the survival of peripheral and central neuronal populations in  
 CC vivo or in vitro.  
 XX  
 XX Sequence 96 AA;

Query Match 58.4%; Score 490; DB 22; Length 96;  
 Best Local Similarity 92.7%; Pred. No. 1.4e-44;  
 Matches 89; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 61 ALSGPCQLMSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTOHGLALARLOGGGRAGH 120  
 DB 1 ALSGPCQLMSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTOHGLALARLOGGGRAGH 60  
 121 GPCCRPTRYTDVAFLLDRHRWQRLPOLSAACGCCG 156  
 DB 61 GPCCRPTRYTDVAFLLDRHRWQRLPOLSAACGCCG 96

RESULT 14  
 AAU03950  
 ID AAU03950 standard; Protein: 97 AA.

XX AC AAU03950;

XX DT 23-OCT-2001 (first entry)

XX DE Human PNP-F2ac full-length polypeptide.

XX KW Persephin; F2a; F2c; GDNF; neurturin; artemin; human; mouse; rat; AIDS;  
 KW growth factor receptor alphas-RET protein tyrosine kinase; GFRA1-Ret;  
 KW trophic support; peripheral neuropathy; amyotrophic lateral sclerosis;  
 KW Alzheimer's disease; Parkinson's disease; Huntington's disease; diabetes;  
 KW acquired immunodeficiency syndrome; ischaemic stroke; acute brain injury;  
 KW acute spinal cord injury; multiple sclerosis; nervous system tumour;  
 KW neuroblastoma; enteric disease; idiopathic constipation; eosinopenia;  
 KW basopenia; lymphopenia; monocytopenia; neutropenia; anaemia;  
 KW cardiac muscle degeneration; congestive heart failure; thrombocytopenia;  
 KW mutant; mutelin.

Chimeric - Homo sapiens.

Key Location/Qualifiers  
 Region 68..72  
 /note= "Human neurturin F2a region"  
 Region 82..88  
 /note= "Human neurturin F2c region"

WO200147946-A2.

05-JUL-2001.

21-DEC-2000; 2000WO-US34852.



```

XX PR 28-DEC-1999; 99US-0473551.
XX PA (UNIW ) UNIV WASHINGTON.
XX FT 68..72
XX FT /note= "Human GDNF F2a region"
XX FT 82..88
XX FT /note= "Human GDNF F2c region"
XX PN WO200147946-A2.
XX PD 05-JUL-2001.
XX PF 21-DEC-2000; 2000WO-US34852.
XX PR 28-DEC-1999; 99US-0473551.
XX PA (UNIW ) UNIV WASHINGTON.
XX PI Milbrandt JD, Baloh RH;
XX DR WPI; 2001-425618/45.
XX PT New growth factor that activates growth factor receptor alphas-Ret
XX PT protein-tyrosine kinase, for providing trophic support to a mammalian
XX PT cell and producing differentiation of a mammalian cell in a patient -
XX PS Claim 8; Page 48; 73pp; English.
XX CC The sequence represents a human persephin full-length protein, whereby
XX CC the F2a and F2c regions have amino acid substitutions from the F2a and
XX CC F2c regions of GDNF protein. Persephin can have substitutions from
XX CC the F2a and F2c regions of the proteins GDNF, neurturin and artemin, from
XX CC humans, mice or rats. This type of protein activates the growth factor
XX CC receptor alphas-Ret protein-tyrosine kinase (GFRalpha1-RET), but does not
XX CC substantially activate GFRalpha2-RET or GFRalpha3-RET. The growth factors
XX CC and nucleic acids encoding them are useful for providing trophic support
XX CC to a mammalian cell and/or for producing differentiation of a mammalian
XX CC cell, in a patient suffering from peripheral neuropathy, amyotrophic
XX CC lateral sclerosis, Alzheimer's disease, Parkinson's disease, Huntington's
XX CC disease, diabetes, acquired immunodeficiency syndrome (AIDS), ischaemic
XX CC stroke, acute brain injury, acute spinal cord injury, multiple sclerosis,
XX CC nervous system tumours (e.g. neuroblastomas), or enteric diseases such as
XX CC idiopathic constipation. The sequences are also useful for preventing or
XX CC treating cellular degeneration or insufficiency in an individual,
XX CC suffering from eosinopaenia, basopaenia, lymphopaenia, monocytopenia,
XX CC neutropaenia, anaemia, thrombocytopaenia, cardiac muscle degeneration, or
XX CC congestive heart failure. The growth factors are also useful for
XX CC promoting the survival of peripheral and central neuronal populations in
XX CC vivo or in vitro.
XX SQ Sequence 97 AA;
XX Query Match 56.28; Score 471.5; DB 22; Length 97;
XX Best Local Similarity 90.7%; Pred. No. 1.3e-42;
XX Matches 88; Conservative 3; Mismatches 5; Indels 1; Gaps 1;
XX QY 61 ALSGPCQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQHLALRLQGGRAHG 120
XX DB 1 ALSGPCQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQHLALRLQGGRAHG 60
XX 121 GPCCRPTRYTD-VAFLLDRHRWORLDPSAAACGGCG 156
XX 61 GPCCRPTAYEVAFLDDRHYTHVHLSAAACGGCG 97
XX RESULT 15
XX AAU03949
XX ID AAU03949 standard; Protein: 97 AA.
XX AC AAU03949;
XX XX
XX DT 23-OCT-2001 (first entry)
XX DE Human PGP-F2ac full-length polypeptide.
XX KW Persephin; F2a; F2c; GDNF; neurturin; artemin; human; mouse; rat; AIDS;
XX KW growth factor receptor alphas-Ret protein tyrosine kinase; GFRalpha1-RET;
XX KW trophic support; peripheral neuropathy; amyotrophic lateral sclerosis;
XX KW Alzheimer's disease; Parkinson's disease; Huntington's disease; diabetes;
XX KW acquired immunodeficiency syndrome; ischaemic stroke; acute brain injury;
XX KW acute spinal cord injury; multiple sclerosis; nervous system tumour;
XX KW neuroblastoma; enteric disease; idiopathic constipation; eosinopaenia;
XX KW basopaenia; lymphopaenia; monocytopenia; neutropaenia; anaemia;
XX KW cardiac muscle degeneration; congestive heart failure; thrombocytopaenia;
XX KW mutant; mutin.

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OS XX Chimeric - Homo sapiens.
XX FH Key Location/Qualifiers
XX FT Region 68..72
XX FT /note= "Human GDNF F2a region"
XX FT Region 82..88
XX FT /note= "Human GDNF F2c region"
XX PN WO200147946-A2.
XX PD 05-JUL-2001.
XX PF 21-DEC-2000; 2000WO-US34852.
XX PR 28-DEC-1999; 99US-0473551.
XX PA (UNIW ) UNIV WASHINGTON.
XX PI Milbrandt JD, Baloh RH;
XX DR WPI; 2001-425618/45.
XX PT New growth factor that activates growth factor receptor alphas-Ret
XX PT protein-tyrosine kinase, for providing trophic support to a mammalian
XX PT cell and producing differentiation of a mammalian cell in a patient -
XX PS Claim 8; Page 48; 73pp; English.
XX CC The sequence represents a human persephin full-length protein, whereby
XX CC the F2a and F2c regions have amino acid substitutions from the F2a and
XX CC F2c regions of GDNF protein. Persephin can have substitutions from the
XX CC F2a and F2c regions of the proteins GDNF, neurturin and artemin, from
XX CC humans, mice or rats. This type of protein activates the growth factor
XX CC receptor alphas-Ret protein-tyrosine kinase (GFRalpha1-RET), but does not
XX CC substantially activate GFRalpha2-RET or GFRalpha3-RET. The growth factors
XX CC and nucleic acids encoding them are useful for providing trophic support
XX CC to a mammalian cell and/or for producing differentiation of a mammalian
XX CC cell, in a patient suffering from peripheral neuropathy, amyotrophic
XX CC lateral sclerosis, Alzheimer's disease, Parkinson's disease, Huntington's
XX CC disease, diabetes, acquired immunodeficiency syndrome (AIDS), ischaemic
XX CC stroke, acute brain injury, acute spinal cord injury, multiple sclerosis,
XX CC nervous system tumours (e.g. neuroblastomas), or enteric diseases such as
XX CC idiopathic constipation. The sequences are also useful for preventing or
XX CC treating cellular degeneration or insufficiency in an individual,
XX CC suffering from eosinopaenia, basopaenia, lymphopaenia, monocytopenia,
XX CC neutropaenia, anaemia, thrombocytopaenia, cardiac muscle degeneration, or
XX CC congestive heart failure. The growth factors are also useful for
XX CC promoting the survival of peripheral and central neuronal populations in
XX CC vivo or in vitro.
XX SQ Sequence 97 AA;
XX Query Match 54.9%; Score 460.5; DB 22; Length 97;
XX Best Local Similarity 89.7%; Pred. No. 2e-41;
XX Matches 87; Conservative 3; Mismatches 6; Indels 1; Gaps 1;
XX QY 61 ALSGPCQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQHLALRLQGGRAHG 120
XX DB 1 ALSGPCQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQHLALRLQGGRAHG 60
XX QY 121 GPCCRPTRYTD-VAFLLDRHRWORLDPSAAACGGCG 156
XX DB 61 GPCCRPTAFDDVAFLDDRHYTHVHLSAAACGGCG 97
XX Search completed: July 11, 2003, 12:46:44
XX Job time : 36 secs

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GenCore version 5.1.6  
Copyright (c) 1993 - 2003 CompuGen Ltd.

OM\_protein - protein search, using sw model

Run on: July 11, 2003, 12:46:08 ; Search time 14 Seconds  
(without alignments)  
327.835 Million cell updates/sec

Title: US-09-220-617B-217

Perfect score: 839

Sequence: 1 MAVGKFLGSLLSLLQLGQ.....DRRWQRLPQLSAAACGGG 156

Scoring table:

Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

Issued\_Patents\_AA:\*

- 1: /cgn2\_6/ptodata/1/iaa/5A\_COMB.pep:\*
- 2: /cgn2\_6/ptodata/1/iaa/5B\_COMB.pep:\*
- 3: /cgn2\_6/ptodata/1/iaa/6A\_COMB.pep:\*
- 4: /cgn2\_6/ptodata/1/iaa/6B\_COMB.pep:\*
- 5: /cgn2\_6/ptodata/1/iaa/PCTUS\_COMB.pep:\*
- 6: /cgn2\_6/ptodata/1/iaa/backfiles1.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	839	100.0	156	4	US-08-931-858E-217
2	724	86.3	133	4	US-08-931-858E-132
3	530	63.2	156	4	US-08-931-858E-196
4	529	63.1	96	4	US-08-931-858E-221
5	529	63.1	96	4	US-09-220-528-15
6	511	60.9	156	4	US-08-931-858E-185
7	492	58.6	89	4	US-08-931-858E-223
8	492	58.6	89	4	US-09-220-528-18
9	452	53.9	185	4	US-08-981-739-133
10	452	53.9	185	4	US-09-128-026-133
11	451	53.8	134	4	US-08-981-739-81
12	451	53.8	134	4	US-09-128-026-81
13	451	53.8	142	4	US-08-931-858E-111
14	451	53.8	142	4	US-08-981-739-111
15	451	53.8	142	4	US-09-128-026-111
16	447	53.3	185	4	US-08-981-739-136
17	447	53.3	185	4	US-09-128-026-136
18	439	52.3	96	4	US-08-931-858E-80
19	439	52.3	96	4	US-08-931-858E-187
20	439	52.3	96	4	US-08-981-739-80
21	439	52.3	96	4	US-09-128-026-80
22	433	51.6	96	4	US-08-931-858E-198
23	425	50.7	91	4	US-08-931-858E-89
24	425	50.7	91	4	US-08-981-739-89
25	425	50.7	91	4	US-09-128-026-89
26	423	50.4	91	4	US-08-931-858E-83
27	423	50.4	91	4	US-08-981-739-83

Sequence 83, Appl  
Sequence 79, Appl  
Sequence 79, Appl  
Sequence 79, Appl  
Sequence 82, Appl  
Sequence 82, Appl  
Sequence 141, App  
Sequence 141, App  
Sequence 141, App  
Sequence 105, App  
Sequence 218, App  
Sequence 146, App  
Sequence 146, App  
Sequence 146, App  
Sequence 12, Appl  
Sequence 89, Appl

ALIGNMENTS

RESULT 1  
US-08-931-858E-217  
Sequence 217, Application US/08931858E  
Patent No. 6220222  
GENERAL INFORMATION:  
APPLICANT: JOHNSON, EUGENE M  
APPLICANT: MILBRANDT, JEFFREY D  
APPLICANT: KOTZBAUER, PAUL T  
APPLICANT: LAMPE, PATRICIA A  
APPLICANT: KLEIN, ROBERT  
APPLICANT: DESAUVAGE, FRED  
TITLE OF INVENTION: PERSEPHIN AND RELATED GROWTH FACTOR  
NUMBER OF SEQUENCES: 239  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: HOWELL & HAFERKAMP, L.C.  
STREET: 7733 FORSYTH BOULEVARD, SUITE 1400  
CITY: ST. LOUIS  
STATE: MO  
COUNTRY: USA  
ZIP: 63105

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA: US/08/931,858E  
FILING DATE:  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: HOLLAND, DONALD R.  
REGISTRATION NUMBER: 35,197  
REFERENCE/DOCKET NUMBER: 971486  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 314-727-5188  
TELEFAX: 314-727-6092  
INFORMATION FOR SEQ ID NO: 217:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 156 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
US-08-931-858E-217

Query Match 100.0%; Score 839; DB 4; Length 156;  
Best Local Similarity 100.0%; Pred. No. 4e-88;  
Matches 156; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 1 MAYGKFLGSLLSLSLQGGGWDARCVPVADGEFSSEQVAKAGTGLGTHRPLARLR 60  
Qy 61 ALSPGCOLWSLTSVAELGLGYASEKVIYFYCAGSCPRGARTOHLALARIQOGRAHG 120  
Db 61 ALSPGCOLWSLTSVAELGLGYASEKVIYFYCAGSCPRGARTOHLALARIQOGRAHG 120  
Qy 121 GPCRPRTRYTDVAFLLDRHRWRLPOLSAACGGGG 156  
Db 121 GPCRPRTRYTDVAFLLDRHRWRLPOLSAACGGGG 156

## RESULT 2

US-08-931-858E-132  
; Sequence 132, Application US/08931858E  
; Patent No. 6222022  
; GENERAL INFORMATION:  
; APPLICANT: JOHNSON, EUGENE M  
; APPLICANT: MILBRANDT, JEFFREY D  
; APPLICANT: KOTZBAUER, PAUL T  
; APPLICANT: LAMPE, PATRICIA A  
; APPLICANT: KLEIN, ROBERT  
; APPLICANT: DESAUVAGE, FRED  
; TITLE OF INVENTION: PERSEPHIN AND RELATED GROWTH FACTOR  
; NUMBER OF SEQUENCES: 239  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: HOWELL & HAFERKAMP, L.C.  
; STREET: 7733 FORSYTH BOULEVARD, SUITE 1400  
; CITY: ST. LOUIS  
; STATE: MO  
; COUNTRY: USA  
; ZIP: 63105

COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.30  
; CURRENT APPLICATION NUMBER: US/08/931,858E  
; FILING DATE:

CLASSIFICATION: 435  
; ATTORNEY/AGENT INFORMATION:  
; NAME: HOLLAND, DONALD R.

REGISTRATION NUMBER: 35,197  
; REFERENCE/DOCKET NUMBER: 971486  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 314-727-5188  
; TELEFAX: 314-727-6092

INFORMATION FOR SEQ ID NO: 132:

SEQUENCE CHARACTERISTICS:  
; LENGTH: 133 amino acids  
; TYPE: amino acid  
; STRANDEDNESS:

TOPOLOGY: linear  
; MOLECULE TYPE: peptide

US-08-931-858E-132

Query Match 86.3%; Score 724; DB 4; Length 133;  
Best Local Similarity 100.0%; Pred. No. 4.2e-75;  
Matches 133; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 24 PDARGVPVADGEFSSEQVAKAGTGLGTHRPLARLRALSGCOLWSLTSVAELGLGYA 83  
Db 1 PDARGVPVADGEFSSEQVAKAGTGLGTHRPLARLRALSGCOLWSLTSVAELGLGYA 60  
Qy 84 SEEKVIFYCAGSCPRGARTOHLALARIQOGRAHGPGCCPRTRYTDVAFLLDRHRW 143  
Db 61 SEEKVIFYCAGSCPRGARTOHLALARIQOGRAHGPGCCPRTRYTDVAFLLDRHRW 120  
Qy 144 LPOLSAACGGGG 156  
Db 121 LPOLSAACGGGG 133

## RESULT 3

US-08-931-858E-196  
; Sequence 196, Application US/08931858E  
; Patent No. 6222022  
; GENERAL INFORMATION:  
; APPLICANT: JOHNSON, EUGENE M  
; APPLICANT: MILBRANDT, JEFFREY D  
; APPLICANT: KOTZBAUER, PAUL T  
; APPLICANT: LAMPE, PATRICIA A  
; APPLICANT: KLEIN, ROBERT  
; APPLICANT: DESAUVAGE, FRED  
; TITLE OF INVENTION: PERSEPHIN AND RELATED GROWTH FACTOR  
; NUMBER OF SEQUENCES: 239  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: HOWELL & HAFERKAMP, L.C.  
; STREET: 7733 FORSYTH BOULEVARD, SUITE 1400  
; CITY: ST. LOUIS  
; STATE: MO  
; COUNTRY: USA  
; ZIP: 63105

COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.30  
; CURRENT APPLICATION NUMBER: US/08/931,858E  
; FILING DATE:

CLASSIFICATION: 435  
; ATTORNEY/AGENT INFORMATION:  
; NAME: HOLLAND, DONALD R.  
; REGISTRATION NUMBER: 35,197  
; REFERENCE/DOCKET NUMBER: 971486  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 314-727-5188  
; TELEFAX: 314-727-6092

INFORMATION FOR SEQ ID NO: 196:

SEQUENCE CHARACTERISTICS:  
; LENGTH: 156 amino acids  
; TYPE: amino acid  
; STRANDEDNESS:

TOPOLOGY: linear  
; MOLECULE TYPE: peptide

US-08-931-858E-196

Query Match 63.2%; Score 530; DB 4; Length 156;

Best Local Similarity 66.0%; Pred. No. 6.9e-53;

Matches 105; Conservative 13; Mismatches 35; Indels 6; Gaps 3;

Qy 1 MAYGKFLGSLLSLSLQGGGWDARCVPVADGEFSSEQVAKAGTGLGTHRPLAR 57

Db 1 MAAGRLRILFLLLSLHLGLGWLDLQAPAAD-ELSSGKNAETGRTWKPHOGNN--VR 57

Qy 58 LRRALSGCOLWSLTSVAELGLGYASEKVIYFYCAGSCPRGARTOHLALARIQOG 117

Db 58 LPRALPGCLRWLSLTPVAELGLGTASEKILFYCAGSCPCQEVYTOHSLVLARLRQGR 117

Qy 118 AHGPGCCPRTRYTDVAFLLDRHRWRLPOLSAACGGGG 156

Db 118 AHGPGCCQPTSYADVTFLDDHHHWOOLPOLSAACGGGG 156

## RESULT 4

US-08-931-858E-221  
; Sequence 221, Application US/08931858E  
; Patent No. 6222022  
; GENERAL INFORMATION:  
; APPLICANT: JOHNSON, EUGENE M  
; APPLICANT: MILBRANDT, JEFFREY D  
; APPLICANT: KOTZBAUER, PAUL T  
; APPLICANT: LAMPE, PATRICIA A  
; APPLICANT: KLEIN, ROBERT

APPLICANT: DESAUVAGE, FRED  
TITLE OF INVENTION: PERSEPHIN AND RELATED GROWTH FACTOR  
NUMBER OF SEQUENCES: 239  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: HOWELL & HAFERKAMP, L.C.  
STREET: 7733 FORSYTH BOULEVARD, SUITE 1400  
CITY: ST. LOUIS  
STATE: MO  
COUNTRY: USA  
ZIP: 63105  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/931,858E  
FILING DATE:  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: HOLLAND, DONALD R.  
REGISTRATION NUMBER: 35,197  
REFERENCE/DOCKET NUMBER: 971486  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 314-727-5188  
TELEFAX: 314-727-6092  
INFORMATION FOR SEQ ID NO: 221:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 96 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
US-08-931-858E-221

Query Match 63.1%; Score 529; DB 4; Length 96;  
Best Local Similarity 100.0%; Pred. No. 4.8e-53;  
Matches 96; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 61 ALSGPCQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQGLALARLOGGGAHG 120  
DB 1 ALSGPCQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQGLALARLOGGGAHG 60  
QY 121 GPCCRPRTYTDVAFLLDDRRHWRQLPOLSAACGCGG 156  
DB 61 GPCCRPRTYTDVAFLLDDRRHWRQLPOLSAACGCGG 96

RESULT 5  
US-09-220-528-15  
Sequence 15, Application US/09220528A  
Patent No. 6284540  
GENERAL INFORMATION:  
APPLICANT: Milbrandt, Jeffrey D.  
ATTORNEY/AGENT INFORMATION:  
NAME: Baion, Robert H.  
REGISTRATION NUMBER: 35,197  
REFERENCE/DOCKET NUMBER: 971486  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 314-727-5188  
TELEFAX: 314-727-6092  
INFORMATION FOR SEQ ID NO: 221:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 156 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
US-08-931-858E-185

Query Match 63.1%; Score 529; DB 4; Length 96;  
Best Local Similarity 100.0%; Pred. No. 4.8e-53;  
Matches 96; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 61 ALSGPCQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQGLALARLOGGGAHG 120  
DB 1 ALSGPCQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQGLALARLOGGGAHG 60  
QY 121 GPCCRPRTYTDVAFLLDDRRHWRQLPOLSAACGCGG 156  
DB 61 GPCCRPRTYTDVAFLLDDRRHWRQLPOLSAACGCGG 96

RESULT 6  
US-08-931-858E-185  
Sequence 185, Application US/08931858E  
Patent No. 6222022  
GENERAL INFORMATION:  
APPLICANT: JOHNSON, EUGENE M  
APPLICANT: MILBRANDT, JEFFREY D  
APPLICANT: KOTZBAUER, PAUL T  
APPLICANT: LAMPE, PATRICIA A  
APPLICANT: KLEIN, ROBERT  
APPLICANT: DESAUVAGE, FRED  
TITLE OF INVENTION: PERSEPHIN AND RELATED GROWTH FACTOR  
NUMBER OF SEQUENCES: 239  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: HOWELL & HAFERKAMP, L.C.  
STREET: 7733 FORSYTH BOULEVARD, SUITE 1400  
CITY: ST. LOUIS  
STATE: MO  
COUNTRY: USA  
ZIP: 63105  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/931,858E  
FILING DATE:  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: HOLLAND, DONALD R.  
REGISTRATION NUMBER: 35,197  
REFERENCE/DOCKET NUMBER: 971486  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 314-727-5188  
TELEFAX: 314-727-6092  
INFORMATION FOR SEQ ID NO: 185:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 156 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
US-08-931-858E-185

Query Match 60.9%; Score 511; DB 4; Length 156;  
Best Local Similarity 64.2%; Pred. No. 1e-50;  
Matches 102; Conservative 16; Mismatches 35; Indels 6; Gaps 3;  
QY 1 MAVGKFLGLSLLLSLQLOGGWDGVPDARGVPSVADGESSEFOVAKAGTWL---GTHPLAR 57  
DB 1 MAAGRLILCLLLLSLHPSLGWVLDLQEAQVAD-KLSFGKMAETGTWTPIHQGNH--VR 57  
QY 58 LRRALSGPQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQGLALARLOGGGAHG 117  
DB 58 LPRALAGSCLRLWSLTLPVAELGLGYASEEKVIFRYCAGSCPOEARTQHSVLARLGRGR 117  
QY 118 AHGGPCCRPRTYTDVAFLLDDRRHWRQLPOLSAACGCGG 156  
DB 118 AHGRPCCOPTSYADVTFLDDQHHWQQLPOLSAACGCGG 156

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RESULT 7
US-08-931-858E-223
; Sequence 223, Application US/08931858E
; Patent No. 6222022
; GENERAL INFORMATION:
; APPLICANT: JOHNSON, EUGENE M
; APPLICANT: MILBRANDT, JEFFREY D
; APPLICANT: KOTZBAUER, PAUL T
; APPLICANT: LAMPE, PATRICIA A
; APPLICANT: KLEIN, ROBERT
; APPLICANT: DESAUVAGE, FRED
; TITLE OF INVENTION: PERSEPHIN AND RELATED GROWTH FACTOR
; NUMBER OF SEQUENCES: 239
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: HOWELL & HAFERKAMP, L.C.
; STREET: 7733 FORSYTH BOULEVARD, SUITE 1400
; CITY: ST. LOUIS
; STATE: MO
; ZIP: 63105
; COUNTRY: USA
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; FILING DATE:
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: HOLLAND, DONALD R.
; REGISTRATION NUMBER: 35,197
; REFERENCE/DOCKET NUMBER: 971486
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 314-727-5188
; TELEFAX: 314-727-6092
; INFORMATION FOR SEQ ID NO: 223:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 89 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-931-858E-223

Query Match 58.6%; Score 492; DB 4; Length 89;
Best Local Similarity 100.0%; Pred. No. 7.3e-49;
Matches 89; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 66 COLWSLTLSVAELGLGYASEKVIPIRYCAGSCPRGARTOHGLALARLOGGCGRAHGGPCCR 125
Db 1 COLWSLTLSVAELGLGYASEKVIPIRYCAGSCPRGARTOHGLALARLOGGCGRAHGGPCCR 60

QY 126 PTRYTDVAFLLDRHRWQRLPQLSAAACGC 154
Db 61 PTRYTDVAFLLDRHRWQRLPQLSAAACGC 89

RESULT 8
US-09-220-528-18
; Sequence 18, Application US/09220528A
; Patent No. 6284540
; GENERAL INFORMATION:
; APPLICANT: Milbrandt, Jeffrey D.
; APPLICANT: Baloh, Robert H.
; TITLE OF INVENTION: Artemin, A No. 6284540el Neurotrophic Factor
; FILE REFERENCE: 6029-7998
; CURRENT APPLICATION NUMBER: US/09/220,528A
; EARLIER FILING DATE: 1998-12-24
; EARLIER APPLICATION NUMBER: 09/218,698
; EARLIER FILING DATE: 1998-12-22
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; EARLIER APPLICATION NUMBER: 60/108,148
; EARLIER FILING DATE: 1998-11-12
; EARLIER APPLICATION NUMBER: 09/163,283
; EARLIER FILING DATE: 1998-09-29
; NUMBER OF SEQ ID NOS: 120
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 18
; LENGTH: 89
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-220-528-18

Query Match 58.6%; Score 492; DB 4; Length 89;
Best Local Similarity 100.0%; Pred. No. 7.3e-49;
Matches 89; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 66 COLWSLTLSVAELGLGYASEKVIPIRYCAGSCPRGARTOHGLALARLOGGCGRAHGGPCCR 125
Db 1 COLWSLTLSVAELGLGYASEKVIPIRYCAGSCPRGARTOHGLALARLOGGCGRAHGGPCCR 60

QY 126 PTRYTDVAFLLDRHRWQRLPQLSAAACGC 154
Db 61 PTRYTDVAFLLDRHRWQRLPQLSAAACGC 89

RESULT 9
US-08-981-739-133
; Sequence 133, Application US/08981739
; Patent No. 6232449
; GENERAL INFORMATION:
; APPLICANT: JOHNSON JR., EUGENE M.
; APPLICANT: MILBRANDT, JEFFREY D.
; APPLICANT: KOTZBAUER, PAUL T.
; APPLICANT: LAMPE, PATRICIA A.
; TITLE OF INVENTION: PERSEPHIN AND RELATED GROWTH FACTORS
; NUMBER OF SEQUENCES: 175
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: HOWELL & HAFERKAMP, L.C.
; STREET: 7733 FORSYTH BOULEVARD, SUITE 1400
; CITY: ST. LOUIS
; STATE: MISSOURI
; COUNTRY: US
; ZIP: 63105-1817
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; FILING DATE: 31-Aug-1998
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: PCT/US97/03461
; FILING DATE: <Unknown>
; ATTORNEY/AGENT INFORMATION:
; NAME: HOLLAND, DONALD R.
; REGISTRATION NUMBER: 35,197
; REFERENCE/DOCKET NUMBER: 976163
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (314) 727-5188
; TELEFAX: (314) 727-6092
; INFORMATION FOR SEQ ID NO: 133:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 185 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; SEQUENCE DESCRIPTION: SEQ ID NO: 133:
US-08-981-739-133

Query Match 53.9%; Score 452; DB 4; Length 185;
```



NUMBER OF SEQUENCES: 176  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: HOWELL & HAFERKAMP, L.C.  
STREET: 7733 FORSYTH BOULEVARD, SUITE 1400  
CITY: ST. LOUIS  
STATE: MISSOURI  
COUNTRY: US  
ZIP: 63105-1817  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/128,026  
FILING DATE:  
CLASSIFICATION:  
ATTORNEY/AGENT INFORMATION:  
NAME: HOLLAND, DONALD R.  
REGISTRATION NUMBER: 35,197  
REFERENCE/DOCKET NUMBER: 976163  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (314) 727-5188  
TELEFAX: (314) 727-6092  
INFORMATION FOR SEQ ID NO: 81:  
LENGTH: 134 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-09-128-026-81

Query Match 53.8%; Score 451; DB 4; Length 134;  
Best Local Similarity 81.0%; Pred. No. 5.8e-44;  
Matches 81; Conservative 8; Mismatches 11; Indels 0; Gaps 0;  
QY 57 RLRRALSGPCQLMSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTOHGLALARLQGG 116  
DB 35 RLPRALAGSCLMSLTLPVAELGLGYASEEKVIFRYCAGSCPOEARTOHSILVLRGRG 94  
QY 117 RAHGGPCCRPTRYTDVAFLLDDRHWORLPQLSAAACGGG 156  
DB 95 RAHGRPCCPQTSYADVTFLLDDQHHWOQLPQLSAAACGGG 134

RESULT 13  
US-08-931-858E-111  
Sequence 111, Application US/08931858E  
Patent No. 6222022  
GENERAL INFORMATION:  
APPLICANT: JOHNSON, EUGENE M.  
APPLICANT: MILBRANDT, JEFFREY D.  
APPLICANT: KOTZBAUER, PAUL T.  
APPLICANT: LAMPE, PATRICIA A.  
APPLICANT: KLEIN, ROBERT  
APPLICANT: DESAUVAGE, FRED  
TITLE OF INVENTION: PERSEPHIN AND RELATED GROWTH FACTOR  
NUMBER OF SEQUENCES: 239  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: HOWELL & HAFERKAMP, L.C.  
STREET: 7733 FORSYTH BOULEVARD, SUITE 1400  
CITY: ST. LOUIS  
STATE: MO  
COUNTRY: USA  
ZIP: 63105  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/931,858E

FILING DATE:  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: HOLLAND, DONALD R.  
REGISTRATION NUMBER: 35,197  
REFERENCE/DOCKET NUMBER: 971486  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 314-727-5188  
TELEFAX: 314-727-6092  
INFORMATION FOR SEQ ID NO: 111:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 142 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-931-858E-111  
Query Match 53.8%; Score 451; DB 4; Length 142;  
Best Local Similarity 81.0%; Pred. No. 6.2e-44;  
Matches 81; Conservative 8; Mismatches 11; Indels 0; Gaps 0;  
QY 57 RLRRALSGPCQLMSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTOHGLALARLQGG 116  
DB 43 RLPRALAGSCLMSLTLPVAELGLGYASEEKVIFRYCAGSCPOEARTOHSILVLRGRG 102  
QY 117 RAHGGPCCRPTRYTDVAFLLDDRHWORLPQLSAAACGGG 156  
DB 103 RAHGRPCCPQTSYADVTFLLDDQHHWOQLPQLSAAACGGG 142  
RESULT 14  
US-08-981-739-111  
Sequence 111, Application US/08981739  
Patent No. 6232449  
GENERAL INFORMATION:  
APPLICANT: JOHNSON JR., EUGENE M.  
APPLICANT: MILBRANDT, JEFFREY D.  
APPLICANT: KOTZBAUER, PAUL T.  
APPLICANT: LAMPE, PATRICIA A.  
TITLE OF INVENTION: PERSEPHIN AND RELATED GROWTH FACTORS  
NUMBER OF SEQUENCES: 176  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: HOWELL & HAFERKAMP, L.C.  
STREET: 7733 FORSYTH BOULEVARD, SUITE 1400  
CITY: ST. LOUIS  
STATE: MISSOURI  
COUNTRY: US  
ZIP: 63105-1817  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/981,739  
FILING DATE: 31-Aug-1998  
CLASSIFICATION: <Unknown>  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: PCT/US97/03461  
FILING DATE: <Unknown>  
ATTORNEY/AGENT INFORMATION:  
NAME: HOLLAND, DONALD R.  
REGISTRATION NUMBER: 35,197  
REFERENCE/DOCKET NUMBER: 976163  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (314) 727-5188  
TELEFAX: (314) 727-6092  
INFORMATION FOR SEQ ID NO: 111:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 142 amino acids  
TYPE: amino acid  
STRANDEDNESS: <Unknown>



Search completed: July 11, 2003, 12:48:23  
Job time : 14 secs

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;
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; SEQUENCE DESCRIPTION: SEQ ID NO: 111:
US-08-981-739-111

Query Match      53.8%; Score 451; DB 4; Length 142;
Best Local Similarity 81.0%; Pred. No. 6.2e-44;
Matches 81; Conservative 8; Mismatches 11; Indels 0; Gaps 0;

Qy 57 RLRRALSGPCQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQHGALARLOGG 116
Db 43 RLPRALAGSCRWSLTLPVAELGLGYASEEKVIFRYCAGSCPRGARTQHGALARLOGG 116
Qy 117 RAHGSPCCRPTRYTDVAFDDRRHWQLPQLSAAACGGG 156
Db 103 RAHGRPCCOPTSYADVTFELDDQHWWQLPQLSAAACGGG 142

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RESULT 15

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US-09-128-026-111
Sequence 111, Application US/09128026
; Patent No. 6403335
; GENERAL INFORMATION:
; APPLICANT: JOHNSON JR., EUGENE M.
; APPLICANT: MILBRANDT, JEFFREY D.
; APPLICANT: KOTZBAUER, PAUL T.
; APPLICANT: LAMPE, PATRICIA A.
; TITLE OF INVENTION: PERSEPHIN AND RELATED GROWTH FACTORS
; NUMBER OF SEQUENCES: 176
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: HOWELL & HAFERKAMP, L.C.
; STREET: 7733 FORSYTH BOULEVARD, SUITE 1400
; CITY: ST. LOUIS
; STATE: MISSOURI
; COUNTRY: US
; ZIP: 63105-1817
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/128,026
; FILING DATE:
; CLASSIFICATION:
; ATTORNEY/AGENT INFORMATION:
; NAME: HOLLAND, DONALD R.
; REGISTRATION NUMBER: 35,197
; REFERENCE/DOCKET NUMBER: 976163
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (314) 727-5188
; TELEFAX: (314) 727-6092
; INFORMATION FOR SEQ ID NO: 111:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 142 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-09-128-026-111

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Query Match      53.8%; Score 451; DB 4; Length 142;
Best Local Similarity 81.0%; Pred. No. 6.2e-44;
Matches 81; Conservative 8; Mismatches 11; Indels 0; Gaps 0;

Qy 57 RLRRALSGPCQLWSLTLSVAELGLGYASEEKVIFRYCAGSCPRGARTQHGALARLOGG 116
Db 43 RLPRALAGSCRWSLTLPVAELGLGYASEEKVIFRYCAGSCPRGARTQHGALARLOGG 116
Qy 117 RAHGSPCCRPTRYTDVAFDDRRHWQLPQLSAAACGGG 156
Db 103 RAHGRPCCOPTSYADVTFELDDQHWWQLPQLSAAACGGG 142

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OM protein - protein search, using sw model

Run on: July 11, 2003, 12:46:49 ; Search time 22 Seconds  
(without alignments)

825.522 Million cell updates/sec

Title: US-09-220-617B-217

Perfect score: 839

Sequence: 1 MAVGKFLGSLLSLQLGQ.....DRHRWQLPQLSAACGGG 156

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Gapop 10.0 , Gapext 0.5

Searched: 445758 seqs, 116419773 residues

Total number of hits satisfying chosen parameters: 445758

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

Published\_Applications\_AA:\*

- 1: /cgn2\_6/ptodata/1/pubpaa/US07\_NEW\_PUB.pep.\*
- 2: /cgn2\_6/ptodata/1/pubpaa/PCT\_NEW\_PUB.pep.\*
- 3: /cgn2\_6/ptodata/1/pubpaa/US06\_NEW\_PUB.pep.\*
- 4: /cgn2\_6/ptodata/1/pubpaa/US06\_PUBCOMB.pep.\*
- 5: /cgn2\_6/ptodata/1/pubpaa/PCTUS\_PUBCOMB.pep.\*
- 6: /cgn2\_6/ptodata/1/pubpaa/US07\_PUBCOMB.pep.\*
- 7: /cgn2\_6/ptodata/1/pubpaa/US07\_NEW\_PUB.pep.\*
- 8: /cgn2\_6/ptodata/1/pubpaa/US08\_PUBCOMB.pep.\*
- 9: /cgn2\_6/ptodata/1/pubpaa/US09\_NEW\_PUB.pep.\*
- 10: /cgn2\_6/ptodata/1/pubpaa/US09\_PUBCOMB.pep.\*
- 11: /cgn2\_6/ptodata/1/pubpaa/US10\_NEW\_PUB.pep.\*
- 12: /cgn2\_6/ptodata/1/pubpaa/US10\_PUBCOMB.pep.\*
- 13: /cgn2\_6/ptodata/1/pubpaa/US60\_NEW\_PUB.pep.\*
- 14: /cgn2\_6/ptodata/1/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	839	100.0	157	9	US-09-813-398-41
2	554.5	66.1	183	10	US-09-800-729-101
3	529	63.1	196	10	US-09-220-920-15
4	492	58.6	89	10	US-09-220-920-18
5	294	35.0	252	10	US-09-800-729-133
6	244	29.1	140	10	US-09-220-920-5
7	244	29.1	140	10	US-09-804-615-10
8	244	29.1	159	10	US-09-220-920-12
9	244	29.1	159	10	US-09-220-920-89
10	244	29.1	181	10	US-09-220-920-40
11	244	29.1	220	9	US-10-001-054-56
12	244	29.1	220	9	US-10-223-085-318
13	244	29.1	220	9	US-10-223-084-318
14	244	29.1	220	9	US-10-223-088-318
15	244	29.1	220	9	US-10-223-090-318
16	244	29.1	220	9	US-10-223-087-318
17	244	29.1	220	9	US-10-223-083-318
18	244	29.1	220	9	US-10-223-089-318
19	244	29.1	220	10	US-09-220-920-26

20	244	29.1	220	10	US-09-804-615-9	Sequence 9, Appl
21	244	29.1	237	10	US-09-220-920-32	Sequence 32, Appl
22	244	29.1	238	9	US-09-813-398-40	Sequence 40, Appl
23	243	29.0	116	10	US-09-220-920-4	Sequence 4, Appl
24	243	29.0	116	10	US-09-804-615-11	Sequence 11, Appl
25	242	28.8	135	10	US-09-804-615-40	Sequence 40, Appl
26	241.5	28.8	144	10	US-09-220-920-36	Sequence 36, Appl
27	241.5	28.8	185	10	US-09-220-920-41	Sequence 41, Appl
28	241.5	28.8	224	10	US-09-804-615-16	Sequence 16, Appl
29	238.5	28.4	200	10	US-09-804-615-2	Sequence 2, Appl
30	237	28.2	113	10	US-09-220-920-3	Sequence 3, Appl
31	237	28.2	113	10	US-09-804-615-12	Sequence 12, Appl
32	237	28.2	114	10	US-09-804-615-37	Sequence 37, Appl
33	237	28.2	140	10	US-09-804-615-5	Sequence 5, Appl
34	236.5	28.2	113	10	US-09-220-920-34	Sequence 34, Appl
35	236.5	28.2	116	10	US-09-220-920-35	Sequence 35, Appl
36	236.5	28.2	116	10	US-09-804-615-6	Sequence 6, Appl
37	236	28.1	116	10	US-09-804-615-34	Sequence 34, Appl
38	235.5	28.1	224	10	US-09-804-615-4	Sequence 4, Appl
39	234	27.9	237	10	US-09-220-920-33	Sequence 33, Appl
40	231.5	27.6	96	10	US-09-813-398-17	Sequence 17, Appl
41	231.5	27.6	198	9	US-09-813-398-17	Sequence 17, Appl
42	230	27.4	113	10	US-09-804-615-7	Sequence 7, Appl
43	223.5	26.6	96	10	US-09-220-920-19	Sequence 19, Appl
44	219.5	26.2	102	10	US-09-220-920-14	Sequence 14, Appl
45	215.5	25.7	90	10	US-09-220-920-75	Sequence 75, Appl

#### ALIGNMENTS

##### RESULT 1

US-09-813-398-41  
; Sequence 41, Application US/09813398  
; Patent No. US20020169292A1  
; GENERAL INFORMATION:  
; APPLICANT: Bruce D. Weintraub  
; APPLICANT: Mariusz W. Szkudlinski  
; TITLE OF INVENTION: CYSTINE KNOT GROWTH FACTOR MUTANTS  
; FILE REFERENCE: UOFMD.003C1  
; CURRENT APPLICATION NUMBER: US/09/813,398  
; CURRENT FILING DATE: 2001-03-20  
; PRIOR APPLICATION NUMBER: PCT/US99/05908  
; PRIOR FILING DATE: 1999-03-19  
; PRIOR APPLICATION NUMBER: PCT/US98/19772  
; PRIOR FILING DATE: 1998-09-22  
; NUMBER OF SEQ ID NOS: 41  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 41  
; LENGTH: 157  
; TYPE: PRT  
; ORGANISM: HOMO SAPIEN  
US-09-813-398-41

Query Match	100.0%	Score 839;	DB 9;	Length 157;
Best Local Similarity	100.0%	Pred. No. 4.9e-71;		
Matches 156;	Conservative 0;	Mismatches 0;	Indels 0;	Gaps 0;
QY	1	MAVGKFLGSLLSLQLGOGWGPDPARGVPVADGEFSSQVAKAGGTWLGTHRPLRLRR	60	
DB	2	MAVGKFLGSLLSLQLGOGWGPDPARGVPVADGEFSSQVAKAGGTWLGTHRPLRLRR	61	
QY	61	ALSGPCOLWSLTLSVAELGIGYASEKVIIFRYCAGSCPRGARTQHGTLARLQSGRAHG	120	
DB	62	ALSGPCOLWSLTLSVAELGIGYASEKVIIFRYCAGSCPRGARTQHGTLARLQSGRAHG	121	
QY	121	GPCCRPTRYTDVAFLLDDRRHWQLPQLSAACGGG	156	
DB	122	GPCCRPTRYTDVAFLLDDRRHWQLPQLSAACGGG	157	

##### RESULT 2

US-09-800-729-101  
; Sequence 101, Application US/09800729  
; Patent No. US20020068319A1  
; GENERAL INFORMATION:  
; APPLICANT: Ni et al.  
; TITLE OF INVENTION: 32 Human secreted proteins  
; FILE REFERENCE: P2044P1  
; CURRENT APPLICATION NUMBER: US/09/800,729  
; CURRENT FILING DATE: 2001-03-08  
; PRIOR APPLICATION NUMBER: PCT/US00/26013  
; PRIOR FILING DATE: 2000-09-22  
; PRIOR APPLICATION NUMBER: 60/155,709  
; PRIOR FILING DATE: 1999-09-24  
; NUMBER OF SEQ ID NOS: 217  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 101  
; LENGTH: 183  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
; FEATURE:  
; NAME/KEY: SITE  
; LOCATION: (86)  
; OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids  
; NAME/KEY: SITE  
; LOCATION: (146)  
; OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids  
US-09-800-729-101  
Query Match 66.1%; Score 554.5; DB 10; Length 183;  
Best Local Similarity 63.4%; Pred. No. 2.2e-44;  
Matches 118; Conservative 5; Mismatches 30; Indels 33; Gaps 5;  
QY 1 MAVKFLGSLLSLQGGWGPARGVPVADGEFSEQVAKAGTWLGTGTH---RPLA 56  
DB 1 MAVKFLGSLLSLQGGWGPARGVPVADGEFSEQVAKAGTWLGTGTH---RPLA 56  
QY 57 RLRLALS-----GPCQLWSL-----TLVAELGLGYASEKVP 90  
DB 61 QLSPALTLTVSALPSHRHPPPPCPXAPSPVMSMPAVEPDVGRARPGRLIGE--VIF 118  
QY 91 RYCAGSCPRGARTQHGLALARLQGGRAHGGPCCRPTRYTDVAFDLDHRWQRLPOLSA 150  
DB 119 RYCAGSCPRGARTQHGLALARLQGGRAHGGPCCRPTRYTDVAFDLDHRWQRLPOLSA 150  
QY 151 ACGCGG 156  
DB 178 LCGCGG 183  
SULT 3  
-09-220-920-15  
; Sequence 15, Application US/09220920  
; Patent No. US2002002269A1  
; GENERAL INFORMATION:  
; APPLICANT: Milbrandt, Jeffrey D.  
; APPLICANT: Baloh, Robert H.  
; TITLE OF INVENTION: Artemin, A No. US2002002269A1el Neurotrophic Factor  
; FILE REFERENCE: 6029-7996  
; CURRENT APPLICATION NUMBER: US/09/220,920  
; CURRENT FILING DATE: 1998-12-24  
; EARLIER APPLICATION NUMBER: 09/163,283  
; EARLIER FILING DATE: 1998-09-29  
; EARLIER APPLICATION NUMBER: 60/108,148  
; EARLIER FILING DATE: 1998-11-12  
; EARLIER APPLICATION NUMBER: 09/218,698  
; EARLIER FILING DATE: 1998-12-22  
; NUMBER OF SEQ ID NOS: 120  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 15  
; LENGTH: 96  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-09-220-920-15

Query Match 63.1%; Score 529; DB 10; Length 96;  
Best Local Similarity 100.0%; Pred. No. 2.6e-42;  
Matches 96; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 61 ALSGPCQLMSLTSLVAELGLGYASEKVPFRYAGSCPRGARTQHGLALARLQGGRAHG 120  
DB 1 ALSGPCQLMSLTSLVAELGLGYASEKVPFRYAGSCPRGARTQHGLALARLQGGRAHG 60  
QY 121 GPCCRPTRYTDVAFDLDHRWQRLPOLSAACGCGG 156  
DB 61 GPCCRPTRYTDVAFDLDHRWQRLPOLSAACGCGG 96  
RESULT 4  
US-09-220-920-18  
; Sequence 18, Application US/09220920  
; Patent No. US2002002269A1  
; GENERAL INFORMATION:  
; APPLICANT: Milbrandt, Jeffrey D.  
; APPLICANT: Baloh, Robert H.  
; TITLE OF INVENTION: Artemin, A No. US2002002269A1el Neurotrophic Factor  
; FILE REFERENCE: 6029-7996  
; CURRENT APPLICATION NUMBER: US/09/220,920  
; CURRENT FILING DATE: 1998-12-24  
; EARLIER APPLICATION NUMBER: 09/163,283  
; EARLIER FILING DATE: 1998-09-29  
; EARLIER APPLICATION NUMBER: 60/108,148  
; EARLIER FILING DATE: 1998-11-12  
; EARLIER APPLICATION NUMBER: 09/218,698  
; EARLIER FILING DATE: 1998-12-22  
; NUMBER OF SEQ ID NOS: 120  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 18  
; LENGTH: 89  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-09-220-920-18  
Query Match 58.6%; Score 492; DB 10; Length 89;  
Best Local Similarity 100.0%; Pred. No. 6.6e-39;  
Matches 89; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 66 CQLWSLTSLVAELGLGYASEKVPFRYAGSCPRGARTQHGLALARLQGGRAHGGPCCR 125  
DB 1 CQLWSLTSLVAELGLGYASEKVPFRYAGSCPRGARTQHGLALARLQGGRAHGGPCCR 60  
QY 126 PTRYTDVAFDLDHRWQRLPOLSAACGCG 154  
DB 61 PTRYTDVAFDLDHRWQRLPOLSAACGCG 89  
RESULT 5  
US-09-800-729-133  
; Sequence 133, Application US/09800729  
; Patent No. US20020068319A1  
; GENERAL INFORMATION:  
; APPLICANT: Ni et al.  
; TITLE OF INVENTION: 32 Human secreted proteins  
; FILE REFERENCE: P2044P1  
; CURRENT APPLICATION NUMBER: US/09/800,729  
; CURRENT FILING DATE: 2001-03-08  
; PRIOR APPLICATION NUMBER: PCT/US00/26013  
; PRIOR FILING DATE: 2000-09-22  
; PRIOR APPLICATION NUMBER: 60/155,709  
; PRIOR FILING DATE: 1999-09-24  
; NUMBER OF SEQ ID NOS: 217  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 133  
; LENGTH: 252  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
; FEATURE:

NAME/KEY: SITE  
LOCATION: (86)  
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids  
NAME/KEY: SITE  
LOCATION: (116)  
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids  
NAME/KEY: SITE  
LOCATION: (135)  
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids  
NAME/KEY: SITE  
LOCATION: (146)  
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids  
US-09-800-729-133

Query Match 35.0%; Score 294; DB 10; Length 252;  
Best Local Similarity 41.6%; Pred. No. 6.7e-20;  
Matches 87; Conservative 8; Mismatches 50; Indels 64; Gaps 8;  
QY 1 MAYGKFLGSLLLLSLQGGGWDARGVPVADGSESSQVAKAGGTWLGTH-----RPLA 56  
Db 1 MAVGKFLGSLLLLSLQGGGWDARGVPVADGSESSQVAKAGGTWLGTH-----RPLA 56  
QY 57 RLRLALS-----GPCQLMSL-----TSLVAELGLGVASEE--KV 88  
Db 61 QLSPALTLTYSALPSHRRPPPCXPAPSPVMSMPAVEPDVVRGAPGLRLIGEXHPL 120  
QY 89 IFRYCAGSCPRGARTQHGCLARLALOGGRAGHGGPCCRPTRYTDVAFLLDRH-----RW 141  
Db 121 LRQLPWCPPHA-----WXGAGPA-AGPGXPRLALLPAHSLHRRGLPRPRPW 169  
QY 142 ORLPOLSA-----ACGCGG 156  
Db 170 ORLPOLSAALMLWLRVPLAPRSCSAGG 198

RESULT 6  
US-09-220-920-5  
Sequence 5, Application US/09220920  
Patent No. US20020002269A1  
GENERAL INFORMATION:  
APPLICANT: Milbrandt, Jeffrey D.  
TITLE OF INVENTION: Artemin, A No. US20020002269A1el Neurotrophic Factor  
FILE REFERENCE: 6029-7996  
CURRENT APPLICATION NUMBER: US/09/220, 920  
CURRENT FILING DATE: 1998-12-24  
EARLIER FILING DATE: 1998-09-29  
EARLIER APPLICATION NUMBER: 60/163, 283  
EARLIER FILING DATE: 1998-11-12  
EARLIER APPLICATION NUMBER: 09/218, 698  
NUMBER OF SEQ ID NOS: 120  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 5  
LENGTH: 140  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-220-920-5

Query Match 29.1%; Score 244; DB 10; Length 140;  
Best Local Similarity 44.8%; Pred. No. 1.7e-15;  
Matches 56; Conservative 17; Mismatches 36; Indels 16; Gaps 3;  
QY 40 QVAKAGGTWLGTHRLARLRRLSGPCQLMSLTLVAELGLGVASEEKVIFRYCAGSCPR 99  
Db 24 RAARAGG-----PGSRARAGARGCRLRSQVLPVYRGLGHRSDLVRFCSGSC-R 75  
QY 100 GARTQHGCLARLOGG-----RAHGGPCCRPTRYTDVAFLLDRHWRQRLPOLSA 151  
Db 76 RARSPHDLASLALGAGALRPPPGSRPVSPQCCRPTRYEAVSFMDVNSTWRTVDRLSATA 135  
QY 152 CGCGG 156

Db 136 CGCLG 140  
RESULT 7  
US-09-804-615-10  
Sequence 10, Application US/09804615  
Patent No. US20020055467A1  
GENERAL INFORMATION:  
APPLICANT: Johansen, Teit E.  
TITLE OF INVENTION: No. US20020055467A1el Neurotrophic Factors  
FILE REFERENCE: No. US20020055467A1el Neurotrophic Factors  
CURRENT APPLICATION NUMBER: US/09/804, 615  
CURRENT FILING DATE: 2001-03-12  
PRIOR APPLICATION NUMBER: DANISH 1998 00904  
PRIOR FILING DATE: 1998-07-06  
PRIOR APPLICATION NUMBER: USSN 60/092,229  
PRIOR FILING DATE: 1998-07-09  
PRIOR APPLICATION NUMBER: DANISH 1998 01048  
PRIOR FILING DATE: 1998-08-19  
PRIOR APPLICATION NUMBER: USSN 60/097,774  
PRIOR FILING DATE: 1998-08-25  
PRIOR APPLICATION NUMBER: USSN 60/103,908  
PRIOR FILING DATE: 1998-10-13  
PRIOR APPLICATION NUMBER: DANISH 1998 01265  
PRIOR FILING DATE: 1998-10-06  
PRIOR APPLICATION NUMBER: U.S.N 09/347,613  
PRIOR FILING DATE: 1999-07-02  
NUMBER OF SEQ ID NOS: 40  
SOFTWARE: PatentIn Ver. 2.1  
SEQ ID NO 10  
LENGTH: 140  
TYPE: PRT  
ORGANISM: Homo sapiens  
FEATURE:  
NAME/KEY: CARBOHYD  
LOCATION: (122)  
OTHER INFORMATION: glycosylated asparagine  
US-09-804-615-10

Query Match 29.1%; Score 244; DB 10; Length 140;  
Best Local Similarity 44.8%; Pred. No. 1.7e-15;  
Matches 56; Conservative 17; Mismatches 36; Indels 16; Gaps 3;  
QY 40 QVAKAGGTWLGTHRLARLRRLSGPCQLMSLTLVAELGLGVASEEKVIFRYCAGSCPR 99  
Db 24 RAARAGG-----PGSRARAGARGCRLRSQVLPVYRGLGHRSDLVRFCSGSC-R 75  
QY 100 GARTQHGCLARLOGG-----RAHGGPCCRPTRYTDVAFLLDRHWRQRLPOLSA 151  
Db 76 RARSPHDLASLALGAGALRPPPGSRPVSPQCCRPTRYEAVSFMDVNSTWRTVDRLSATA 135  
QY 152 CGCGG 156  
Db 136 CGCLG 140

RESULT 8  
US-09-220-920-12  
Sequence 12, Application US/09220920  
Patent No. US20020002269A1  
GENERAL INFORMATION:  
APPLICANT: Milbrandt, Jeffrey D.  
TITLE OF INVENTION: Artemin, A No. US20020002269A1el Neurotrophic Factor  
FILE REFERENCE: 6029-7996  
CURRENT APPLICATION NUMBER: US/09/220, 920  
CURRENT FILING DATE: 1998-12-24  
EARLIER FILING DATE: 1998-09-29  
EARLIER APPLICATION NUMBER: 60/163, 283  
EARLIER FILING DATE: 1998-11-12  
EARLIER APPLICATION NUMBER: 09/218, 698  
NUMBER OF SEQ ID NOS: 120  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 12  
LENGTH: 140  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-220-920-12

US-09-220-920-40  
; Sequence 40, Application US/09220920  
; Patent No. US20020002269A1

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: July 11, 2003, 12:45:38 ; Search time 18 Seconds  
(without alignments)  
833.165 Million cell updates/sec

Title: US-09-220-617b-217  
Perfect score: 839  
Sequence: 1 MAVGKFLGLSLLLSLQLGQ.....DRHRWQLPQLSAAACGGG 156

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000  
Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : PIR\_73:.\*  
1: pir1.\*  
2: pir2.\*  
3: pir3.\*  
4: pir4.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	231.5	27.6	197	2 747159	hypothetical prote
2	177.5	21.2	211	2 149686	glial cell line-de
3	176.5	21.0	211	2 A37499	glial cell line-de
4	171	20.4	211	2 B37499	glial cell line-de
5	116.5	13.9	575	1 WFBOM	mullerian inhibiti
6	115	13.7	560	1 WFBOM	mullerian inhibiti
7	112	13.3	555	1 S20100	mullerian inhibiti
8	110.5	13.2	553	1 A42999	mullerian inhibiti
9	108.5	12.9	575	2 T11753	mullerian inhibiti
10	104	12.4	644	2 JC5119	anti-mullerian hor
11	99.5	11.9	352	2 JC2466	inhibin beta-C cha
12	99	11.8	373	2 PW0042	activin - fruit fl
13	87	10.4	352	2 S70580	activin beta C pre
14	85	10.1	373	2 T12063	xpSL protein - Xan
15	84	10.0	352	2 JC5366	activin beta C - m
16	84	10.0	402	2 A83398	probable MFS trans
17	83.5	10.0	115	2 PN0506	activin beta B-2 c
18	83.5	10.0	393	2 IS0103	activin beta B - z
19	83.5	10.0	467	1 KCHUN	neutrophil collage
20	82	9.8	370	2 F95363	probable serine-py
21	81.5	9.7	207	2 S37618	vgr protein - rat
22	81.5	9.7	255	2 I48235	inhibin beta-B cha
23	81.5	9.7	411	2 B41398	inhibin beta-B cha
24	81.5	9.7	510	2 A54798	Vg-1-related prote
25	81	9.7	408	1 BMHU4	bone morphogenetic
26	81	9.7	455	2 A43918	TGF-beta-related p
27	80.5	9.6	115	2 PN0505	activin beta B-1 c
28	80.5	9.6	349	1 WFPGBB	inhibin beta-B cha
29	80.5	9.6	407	1 A40150	inhibin beta-B cha

30	80.5	9.6	408	2 S50899	betaB inhibin prec
31	80.5	9.6	513	1 BMHU6	bone morphogenetic
32	80	9.5	754	2 AE0614	probable competent
33	79.5	9.5	309	2 JC5697	placental transfer
34	79.5	9.5	370	2 IS1199	activin beta B sub
35	79	9.4	408	2 S58791	bone morphogenetic
36	79	9.4	426	2 JH0690	bone morphogenetic
37	78.5	9.4	412	2 A34939	transforming growt
38	78	9.3	865	2 B69074	probable formate d
39	77.5	9.2	357	2 A39364	GDF-1 embryonic gr
40	77.5	9.2	588	2 A26158	decapentaplegic pr
41	77	9.2	334	2 T36475	probable DNA-bind
42	77	9.2	438	2 B87411	sensor histidine k
43	77	9.2	461	2 S52408	SPDVR1 protein - s
44	77	9.2	913	2 S20590	exo-alpha-sialidas
45	76	9.1	218	2 T03287	osmotin protein ho

## ALIGNMENTS

### RESULT 1

T47159  
hypothetical protein DKFp762B0211.1 - human  
C:Species: Homo sapiens (man)  
C:Date: 20-Apr-2000 #sequence\_revision 20-Apr-2000 #text\_change 20-Apr-2000  
C:Accession: T47159  
R:Blum, H.; Bauersachs, S.; Mewes, H.W.; Weil, B.; Wiemann, S.  
Submitted to the Protein Sequence Database, March 2000  
A:Reference number: 224379  
A:Accession: T47159  
A>Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-197 <AAA>  
A:Cross-references: EMBL:AL161995  
A:Experimental source: adult melanoma (Mewo cell line); clone DKFp762B0211  
C:Genetics:  
A>Note: DKFp762B0211.1

Query Match 27.6%; Score 231.5; DB 2; Length 197;

Best Local Similarity 39.1%; Pred.No. 6.7e-15;  
Matches 66; Conservative 15; Mismatches 56; Indels 35; Gaps 8;

Qy	12	LLLLQLQGQNGP-----DAR-----GVPVADGEFSEQVAKAGTWTG 51
Db	27	LLLLSHRLGALVPLHRLPRTLDARIAGYRALLQGPDA---MELRELTWAGRP 83
Qy	52	HR---PLARLRALSG--PCOLWSLTLSVAELGLGYASEKVFYRCAGSCPRGARTQHG 106
Db	84	RRRAGPRRRRARARLARGPCGLRELVSELGLGVASDETFLFRYCAGACBAARV-YD 142
Qy	107	LALARLQ-----GOGRAHGGPCCRPTRYTD-VAFDDRHWRQRLPQLSAAACGC 154
Db	143	LGLRLRLRRRLRRVRVRAQPCCRPTAYEDVSFLDAHSRYHTVHLSARECAC 196

### RESULT 2

I49686  
glial cell line-derived neutrotrophic factor - mouse  
C:Species: Mus musculus (house mouse)  
C:Date: 02-Aug-1996 #sequence\_revision 02-Aug-1996 #text\_change 08-Oct-1999  
C:Accession: I49686; JC6518  
R:Watabe, K.; Fukuda, T.; Tanaka, J.; Honda, H.; Toyohara, K.; Sakai, O.  
J. Neurosci. Res. 41, 279-290, 1995  
A:Title: Spontaneously immortalized adult mouse Schwann cells secrete autocrine and p  
A:Reference number: I49686; MUID:95379105; PMID:7650763  
A:Accession: I49686  
A>Status: preliminary; translated from GB/EMBL/DDBJ  
A:Molecule type: mRNA  
A:Residues: 1-211 <RES>  
A:Cross-references: GB:D49921; NID:g758584; PIDN:BAA08660.1; PID:g758585  
R:Matsushita, N.; Fujita, Y.; Tanaka, M.; Nogatsu, T.; Kiuchi, K.  
Gene 203, 149-157, 1997

A:Title: Cloning and structural organization of the gene encoding the mouse glial cell  
 A:Reference number: JC6518; MUID:98086214; PMID:9426245  
 A:Accession: JC6518  
 A:Status: preliminary  
 A:Molecule type: nucleic acid  
 A:Residues: 1-211 <MAT>

Query Match 21.2%; Score 177.5; DB 2; Length 211;  
 Best Local Similarity 34.6%; Pred. No. 1.1e-09;  
 Matches 47; Conservative 22; Mismatches 58; Indels 9; Gaps 4;  
 QY 24 PDARGVPVADGESSEOVAKAGGTWLTGTHRPLARLRRLSGPCQLWSLTLSVAELGLGYA 83  
 Db 79 PDQAALPRRNRNRQAAASPENSRGKR--RGQRKNRGCVLTAHLNVTDLGLGYE 135  
 QY 84 SEEKVIFRYCAGSGPRGARTQHGLALARLQGGRAH---GGPCRPRTRY-TDVAFLDDR 138  
 Db 136 TKEELIFRYCSGC-ESAETMYDKILNLSRRLTSKVGQACCRPVAFDDLSFLDDN 194  
 QY 139 HRWQRLPOLSAACGCC 154  
 Db 195 LVYHILRKHSAKRCGC 210

## RESULT 3

A37499  
 glial cell line-derived neurotrophic factor precursor - rat  
 N:Alternate names: GDNF  
 N:Contains: glial cell line-derived neurotrophic factor splice form GDNF555; glial cell  
 C:Species: Rattus norvegicus (Norway rat)  
 C>Date: 16-Feb-1994 #sequence\_revision 16-Feb-1994 #text\_change 05-Nov-1999  
 C:Accession: A37499; I57605; I53427; I58180; S61537  
 R:Lin, L.F.; Doherty, D.H.; Lile, J.D.; Bektesh, S.; Collins, F.  
 Science 260, 1130-1132, 1993  
 A:Title: GDNF: a glial cell line-derived neurotrophic factor for midbrain dopaminergic  
 A:Reference number: A37499; MUID:93262463; PMID:8493557  
 A:Accession: A37499  
 A:Molecule type: mRNA; protein  
 A:Residues: 1-211 <LIN>  
 A:Cross-references: GB:I15305; NID:g910123; PIDN:AAA67909.1; PID:g910124  
 A:Experimental source: glial cell line B49  
 R:Springer, J.E.; Seeburger, J.L.; He, J.; Gabres, A.; Blankenhorn, E.P.; Bergman, L.W.  
 Exp. Neurol. 131, 47-52, 1995  
 A:Title: cDNA sequence and differential mRNA regulation of two forms of glial cell line-  
 A:Reference number: I53427; MUID:95203379; PMID:7895811  
 A:Accession: I57605  
 A:Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: mRNA  
 A:Residues: 1-24, 'A', '52-76', 'S', '78-89', 'K', '91-211 <SPR1>  
 A:Cross-references: GB:S75585; NID:g912790; PIDN:AAB33892.1; PID:g912791  
 A:Experimental source: Long-Evan rats; splice form GDNF555  
 A:Accession: I53427  
 A:Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: mRNA  
 A:Residues: 1-76, 'S', '78-89', 'K', '91-211 <SPR2>  
 A:Cross-references: GB:S75583; NID:g912788; PIDN:AAB33891.1; PID:g912789  
 A:Experimental source: strain uncertain; splice form GDNF633  
 R:Suter-Crazzolara, C.; Unsicker, K.  
 Neuroreport 5, 2486-2488, 1994  
 A:Title: GDNF is expressed in two forms in many tissues outside the CNS.  
 A:Reference number: I58180; MUID:95210610; PMID:7696586  
 A:Accession: I58180  
 A:Status: translated from GB/EMBL/DBJ  
 A:Molecule type: mRNA  
 A:Residues: 1-24, 'A', '52-76 <SUT>  
 A:Cross-references: EMBL:X92495; NID:g1045219; PIDN:CAA63237.1; PID:g1045220  
 A:Experimental source: strain wistar; kidney  
 C:Genetics:  
 A:Gene: gdnf  
 A:Keywords: disulfide bond; glycoprotein; homodimer  
 F:1-211/Product: glial cell line-derived neurotrophic factor splice form GDNF633 #status  
 F:1-24, 'A', '52-211/Product: glial cell line-derived neurotrophic factor splice form GDNF5

F:1-19/Domains: signal sequence #status predicted <SIG>  
 F:20-77/Domains: propeptide #status predicted <PRO>  
 F:78-211/Product: glial cell line-derived neurotrophic factor #status experimental <M>  
 F:126,162/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 21.0%; Score 176.5; DB 2; Length 211;  
 Best Local Similarity 34.6%; Pred. No. 1.3e-09;  
 Matches 47; Conservative 22; Mismatches 58; Indels 9; Gaps 4;  
 QY 24 PDARGVPVADGESSEOVAKAGGTWLTGTHRPLARLRRLSGPCQLWSLTLSVAELGLGYA 83  
 Db 79 PDQAALPRRNRNRQAAASPENSRGKR--RGQRKNRGCVLTAHLNVTDLGLGYE 135  
 QY 84 SEEKVIFRYCAGSGPRGARTQHGLALARLQGGRAH---GGPCRPRTRY-TDVAFLDDR 138  
 Db 136 TKEELIFRYCSGC-ESAETMYDKILNLSRRLTSKVGQACCRPVAFDDLSFLDDN 194  
 QY 139 HRWQRLPOLSAACGCC 154  
 Db 195 LVYHILRKHSAKRCGC 210

## RESULT 4

B37499  
 glial cell line-derived neurotrophic factor precursor - human  
 N:Alternate names: GDNF  
 C:Species: Homo sapiens (man)  
 C>Date: 26-Aug-1999 #sequence\_revision 26-Aug-1999 #text\_change 26-Aug-1999  
 C:Accession: B37499  
 R:Lin, L.F.; Doherty, D.H.; Lile, J.D.; Bektesh, S.; Collins, F.  
 Science 260, 1130-1132, 1993  
 A:Title: GDNF: a glial cell line-derived neurotrophic factor for midbrain dopaminergic  
 A:Reference number: A37499; MUID:93262463; PMID:8493557  
 A:Accession: B37499  
 A:Molecule type: DNA  
 A:Residues: 1-211 <LIN>  
 A:Cross-references: GB:I15306; NID:g306761; PIDN:AAA67910.1; PID:g306763  
 A:Note: sequence extracted from NCBI backbone (NCBI:P132084)  
 C:Keywords: glycoprotein; homodimer  
 F:1-19/Domains: signal sequence #status predicted <SIG>  
 F:20-77/Domains: propeptide #status predicted <PRO>  
 F:78-211/Product: glial cell line-derived neurotrophic factor #status predicted <MAT>  
 F:126,162/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 20.4%; Score 171; DB 2; Length 211;  
 Best Local Similarity 39.8%; Pred. No. 4.5e-09;  
 Matches 41; Conservative 17; Mismatches 39; Indels 6; Gaps 3;

QY 57 RLRLSGPCQLWSLTLSVAELGLGYASEKVIKRYCAGSGPRGARTQHGLARLQGG 116  
 Db 109 RGQRKNRGCVLTAHLNVTDLGLGYETKEELIFRYCSGSCD-AAETTYDKILNLSRNR 167  
 QY 117 R----ANGGPCRPRTRY-TDVAFLDDRHRWQRLPOLSAACGCC 154  
 Db 168 RLVSCKVQACCRPIAFDDLSFLDDNLYHILRKHSAKRCGC 210

## RESULT 5

WFBOH  
 nullerian inhibiting factor precursor - bovine  
 N:Alternate names: Mullerian inhibiting substance (MIS)  
 C:Species: Bos primigenius taurus (cattle)  
 C>Date: 13-Aug-1986 #sequence\_revision 13-Aug-1986 #text\_change 01-Dec-2000  
 C:Accession: A01398; B01398  
 R:Caite, R.L.; Mattaliano, R.J.; Hession, C.; Tizard, R.; Farber, N.M.; Cheung, A.; N  
 an, K.L.; Ragin, R.C.; Manganaro, T.F.; MacLaughlin, D.T.; Donahoe, P.K.  
 Cell 45, 685-698, 1986  
 A:Title: Isolation of the bovine and human genes for Mullerian Inhibiting substance  
 A:Reference number: A90879; MUID:86218082; PMID:3754790  
 A:Accession: A01398  
 A:Molecule type: DNA  
 A:Residues: 1-14 <CAI>

A:Experimental source: newborn calf testis, clones cbmis15 and p521



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OM protein - protein search, using sw model

Run on: July 11, 2003, 12:44:58 ; Search time 10 Seconds  
(without alignments)  
647.031 Million cell updates/sec

Title: US-09-220-617b-217

Perfect score: 839

Sequence: 1 NAVGRFLGLSLLSLQIQG.....DRHRWQLPQLSAAACGGC 156

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : SwissProt\_40:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match %	Length	DB ID	Description
1	839	100.0	156	1	PSPN_HUMAN
2	530	63.2	156	1	PSPN_RAT
3	511	60.9	156	1	PSPN_MOUSE
4	231.5	27.6	197	1	NR1N_HUMAN
5	226.5	27.0	195	1	NR1N_MOUSE
6	177.5	21.2	211	1	GNF_MOUSE
7	176.5	21.0	211	1	GNF_RAT
8	171	20.4	211	1	GNF_HUMAN
9	116.5	13.9	575	1	MIS_BOVIN
10	115	13.7	560	1	MIS_HUMAN
11	112.5	13.4	303	1	GDF_RAT
12	112	13.3	555	1	MIS_MOUSE
13	110.5	13.2	553	1	MIS_RAT
14	108.5	12.9	575	1	MIS_PIG
15	99.5	11.9	352	1	IHBC_HUMAN
16	94.5	11.3	303	1	GDF_MOUSE
17	92	11.0	351	1	IHBC_RAT
18	87	10.4	352	1	IHBC_MOUSE
19	86.5	10.3	405	1	GDF_MOUSE
20	86.5	10.3	407	1	GDF_HUMAN
21	84.5	10.1	375	1	GDF_PAPHA
22	84	10.0	501	1	CRTI_AGRAU
23	83.5	10.0	467	1	MM08_HUMAN
24	82	9.8	329	1	IHA_CHICK
25	82	9.8	372	1	DECA_TRICA
26	82	9.8	395	1	UNIV_STRPU
27	81.5	9.7	207	1	BMP6_RAT
28	81.5	9.7	255	1	IHBB_MOUSE
29	81.5	9.7	374	1	GDF_BRARE
30	81.5	9.7	510	1	BMP6_MOUSE
31	81	9.7	408	1	BMP4_HUMAN
32	81	9.7	455	1	60A_DROME
33	80.5	9.6	349	1	IHBB_PIG

## RESULT 1

ID	PSPN_HUMAN	STANDARD:	PRT:	156 AA.
AC	Q60542;			
DT	30-MAY-2000 (Rel. 39, Created)			
DT	30-MAY-2000 (Rel. 39, Last sequence update)			
DT	16-OCT-2001 (Rel. 40, Last annotation update)			
DE	Persephin precursor (PSP).			
GN	PSPN.			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.			
OX	NCBI_TaxID=9606;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=98150950; PubMed=9491986;			
RA	Milbrandt J., de Sauvage F.J., Fahrner T.J., Baloh R.H., Leitner M.L.,			
RA	Tansey M.G., Lampe P.A., Heuckeroth R.O., Kotzbauer P.T.,			
RA	Simburger K.S., Golden J.P., Davies J.A., Vejsada R., Kato A.C.,			
RA	Hynes M., Sherman D., Nishimura M., Wang L.-C., Vanden R., Moffat B.,			
RA	Klein R.D., Poulsen K., Gray C., Garces A., Henderson C.E.,			
RA	Phillips H.S., Johnson E.M.,			
FT	"Persephin, a novel neurotrophic factor related to GDNF and			
FT	neurturin.;			
RL	Neuron 20:245-253(1998).			
CC	-1- FUNCTION: EXHIBITS NEUROTROPHIC ACTIVITY ON MESENCEPHALIC			
CC	DOPAMINERGIC AND MOTOR NEURONS.			
CC	-1- SUBUNIT: HOMODIMER; DISULFIDE-LINKED (BY SIMILARITY).			
CC	-1- SUBCELLULAR LOCATION: Secreted.			
CC	-1- SIMILARITY: BELONGS TO THE TGF-BETA FAMILY. GDNF SUBFAMILY.			
CC	-----			
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CC	entities requires a license agreement (See http://www.isb-sib.ch/announce/			
CC	or send an email to license@isb-sib.ch).			
CC	-----			
DR	EMBL: AF040962; AAC39640.1;			
DR	HSSP: Q07731; IAGO.			
DR	Genew; HGNC:9579; PSNP.			
DR	MIM; 602921;			
DR	InterPro: IPR001839; TGFb.			
DR	Pfam: PF00019; TGF-beta; 1.			
DR	SMART; SM00204; TGFb; 1.			
DR	PROSITE; PS00250; TGF_BETA_1; FALSE_NEG.			
KW	Growth factor; Signal.			
FT	SIGNAL 1 21			
FT	CHAIN 22 156			
FT	PERSEPHIN.			
FT	DISULFID 66 124			
FT	BY SIMILARITY.			
FT	DISULFID 93 152			
FT	BY SIMILARITY.			
FT	DISULFID 97 154			
FT	BY SIMILARITY.			
FT	INTERCHAIN (BY SIMILARITY).			
FT	INTERCHAIN 123 123			
FT	SEQUENCE 156 AA; 16600 MW; 6547751653A7044A CRC64;			

## ALIGNMENTS

34	80.5	9.6	375	1	GDF8_BOVIN
35	80.5	9.6	375	1	GDF8_CHICK
36	80.5	9.6	375	1	GDF8_HUMAN
37	80.5	9.6	375	1	GDF8_MELGA
38	80.5	9.6	375	1	GDF8_PIG
39	80.5	9.6	376	1	GDF8_MOUSE
40	80.5	9.6	376	1	GDF8_RAT
41	80.5	9.6	391	1	IHBB_CHICK
42	80.5	9.6	407	1	IHBB_HUMAN
43	80.5	9.6	408	1	IHBB_BOVIN
44	80.5	9.6	513	1	BMP6_HUMAN
45	79.5	9.5	308	1	GDF6_HUMAN

O18836	bos taurus
O42220	gallus gall
O14793	homo sapien
O42221	meleagris g
O18831	sus scrofa
O08689	mus musculus
O35312	rattus norv
P27093	gallus gall
P09529	homo sapien
P42917	bos taurus
P22004	homo sapien
O99988	homo sapien

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Query Match      100.0%; Score 839; DB 1; Length 156;
Best Local Similarity 100.0%; Pred. No. 3,2e-74;
Matches 156; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAVGKFLGSLLSLQLOGGWDARGVPVADGSEFSSQVAKAGTWTGTHRPLARLR 60
    |||||
Db 1 MAVGKFLGSLLSLQLOGGWDARGVPVADGSEFSSQVAKAGTWTGTHRPLARLR 60
    |||||

QY 61 ALSGPCQLWSLTLSVAELGLCYASEEKVIFRYCAGSCPRGARTQHGCLALARLOGG 120
    |||||
Db 61 ALSGPCQLWSLTLSVAELGLCYASEEKVIFRYCAGSCPRGARTQHGCLALARLOGG 120
    |||||

QY 121 GPCCRPTRYTDAFLDHRWRQLPQLSAAACCGG 156
    |||||
Db 121 GPCCRPTRYTDAFLDHRWRQLPQLSAAACCGG 156
    |||||

RESULT 2
ID PSPN_RAT STANDARD; PRT; 156 AA.
AC 070301;
DT 30-MAY-2000 (Rel. 39, Created)
DT 30-MAY-2000 (Rel. 39, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Persephin precursor (PSP).
GN PSPN.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=98150950; PubMed=9491986;
RA Milbrandt J., de Sauvage F.J., Fahrner T.J., Balch R.H., Leitner M.L.,
RA Tansey M.G., Lampe P.A., Heuckeroth R.O., Kotzbauer P.T.,
RA Simburger K.S., Golden J.P., Davies J.A., Vejsada R., Kato A.C.,
RA Hynes M., Sherman D., Nishimura M., Wang L.-C., Vandlen R., Moffat B.,
RA Klein R.D., Poulsen K., Gray C., Garces A., Henderson C.E.,
RA Phillips H.S., Johnson E.M.;
RT "Persephin, a novel neurotrophic factor related to GDNF and
RT neurturin.";
RL Neuron 20:245-253(1998).
RN [2]
RP SEQUENCE OF 1-78 FROM N.A.
RX STRAIN=Sprague-Dawley; Tissue=Pons;
RX MEDLINE=9837404; PubMed=9710270;
RA Jaswal J., Farkas L.M., Galtier D., Reuss B., Strelau J., Unsicker K.,
RA Kravitzstein K.;
RT "GDNF-related factor persephin is widely distributed throughout the
RT nervous system.";
RL J. Neurosci. Res. 53:494-501(1998).
CC -1- FUNCTION: EXHIBITS NEUROTROPHIC ACTIVITY ON MESENCEPHALIC
CC DOPAMINERGIC AND MOTOR NEURONS.
CC -1- SUBUNIT: HOMODIMER; DISULFIDE-LINKED (BY SIMILARITY).
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- SIMILARITY: BELONGS TO THE TGF-BETA FAMILY. GDNF SUBFAMILY.
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CC -----
DR EMBL; AF040961; AAC40058.1; -
DR EMBL; AJ005169; CA06410.1; -
DR HSSP; Q07731; IAGQ.
DR InterPro; IPR001839; TGFb.
DR Pfam; PF00019; TGF-beta; 1.
DR SMART; SM00204; TGFb; 1.
DR PROSITE; PS00250; TGF-BETA_1; FALSE_NEG.
KW Growth factor; Signal.

```

```

FT SIGNAL          1 21 POTENTIAL.
FT CHAIN           22 156 PERSEPHIN.
FT DISULFID        66 124 BY SIMILARITY.
FT DISULFID        93 152 BY SIMILARITY.
FT DISULFID        97 154 BY SIMILARITY.
FT DISULFID       123 123 INTERCHAIN (BY SIMILARITY).
SQ SEQUENCE       156 AA; 7DC6DD98132E041B CRC64;

Query Match          60.9%; Score 511; DB 1; Length 156;
Best Local Similarity 64.2%; Pred. No. 1.5e-42;
Matches 102; Conservative 16; Mismatches 35; Indels 6; Gaps 3;

QY 1 MAVGKFLGSLLLSLQLQNGPDARGVPVADGFSEQVAKAGTWL---GTHRPLAR 57
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 1 MAAGRLRILCLLLSLHPSLGLWLDQASVAD-KLSFGKMAETRGWTWPHQGNH--VR 57
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
QY 58 LRLASGQCLNSLTLSVAELGLGYASEKVFYRCAGSPRGARTOGLALARLOGGR 117
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 58 LPRALAGSCLNSLTLPVAELGLGYASEKVFYRCAGSPQEAROHSVLARLRGR 117
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
QY 118 AHGPPCCPRTYTDVAFLLDRHWRLPOLSAACGCGG 156
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 118 AHGPPCCOPTSYADVTFLLDQHHWQLPOLSAACGCGG 156
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

RESULT 4
NRTN_HUMAN
ID NRTN_MOUSE STANDARD; PRT; 197 AA.
AC Q99748;
DT 01-NOV-1997 (Rel. 35, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Neurturin precursor.
GN NRTN.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=97100947; PubMed=8945474;
RA Kottbauer P.T., Lampe P.A., Heuckeroth R.O., Golden J.P.,
RA Creodon D.J., Johnson E.M. Jr., Milbrandt J.;
RT "Neurturin, a relative of glial-cell-line-derived neurotrophic
RT factor."
RL Nature 384:467-470(1996).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSU=Melanoma;
RA Blum H., Bauersachs S., Meves H.-W., Weil B., Wiemann S.;
RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
RN [3]
RP VARIANT HSCR SER-96.
RC TISSU=Peripheral blood lymphocytes;
RX MEDLINE=98367034; PubMed=9700200;
RA Doray B., Salomon R., Amiel J., Pelet A., Touraine R., Billaud M.,
RA Attie T., Bachy B., Munnich A., Lyonnet S.;
RT "Mutation of the Ret ligand, neurturin, supports multigenic
RT inheritance in Hirschsprung disease."
RL Hum. Mol. Genet. 7:1449-1452(1998).

-1- FUNCTION: SUPPORTS THE SURVIVAL OF SYMPATHETIC NEURONS IN CULTURE.
CC MAY REGULATE THE DEVELOPMENT AND MAINTENANCE OF THE CNS. MIGHT
CC CONTROL THE SIZE OF NON-NEURONAL CELL POPULATION SUCH AS
CC HAEMOPOIETIC CELLS.
CC -1- SUBUNIT: HOMODIMER; DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- DISEASE: IN ASSOCIATION WITH MUTATIONS OF RET GENE AND POSSIBLY
CC OTHER LOCI, IT IS INVOLVED IN HIRSCHSPRUNG'S DISEASE (HSCR). THIS
CC GENETIC DISORDER OF NEURAL CREST DEVELOPMENT IS CHARACTERIZED BY
CC THE ABSENCE OF INTRAMURAL GANGLION CELLS IN THE HINDGUT; OFTEN
CC RESULTING IN INTENSIVE OBSTRUCTION.
CC -1- SIMILARITY: BELONGS TO THE TGF-BETA FAMILY. GDNF SUBFAMILY.
CC

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DR EMBL; U78110; AAC50898.1; -.
DR EMBL; AL161995; CAB82327.1; -.
DR HSSP; Q07731; IAGO.
DR Genew; HGNC:8007; NRTN.
DR MIN; 602018; -.
DR MIN; 142623; -.
DR InterPro; IPR002400; GF_Cysknot.
DR InterPro; IPR001839; TGFb.
DR Pfam; PF000019; TGF-beta; 1.
DR PRINTS; PR00438; GFCYSKNOT.
DR SMART; SM00204; TGFb; 1.
DR PROSITE; PS00250; TGF_BETA_1; FALSE_NEG.
KW Growth factor; Signal; Disease mutation; Hirschsprung disease.
FT SIGNAL          1 19 POTENTIAL.
FT PROPEP          20 95 BY SIMILARITY.
FT CHAIN           96 197 NEURTURIN.
FT DISULFID        103 165 BY SIMILARITY.
FT DISULFID        130 194 BY SIMILARITY.
FT DISULFID        134 196 BY SIMILARITY.
FT DISULFID        164 164 INTERCHAIN (BY SIMILARITY).
FT VARIANT          96 96 A -> S (IN HSCR; ASSOCIATED TO A RET
FT MUTATION; INCOMPLETE PENETRANCE).
FT FTIG-Var 009498.
SQ SEQUENCE       197 AA; 22405 MW; 91AFAC8CF8971FD CRC64;

Query Match          27.6%; Score 231.5; DB 1; Length 197;
Best Local Similarity 39.1%; Pred. No. 1.9e-15;
Matches 68; Conservative 15; Mismatches 56; Indels 35; Gaps 8;

QY 12 LLLSLQLQGGWGP-----DAR-----GYPVADGFSEQVAKAGTWLGT 51
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 27 LLLSHRLGPAVLPHRLPRTLDAARLARLAQYRALLQGPDA---NEILTPHAGRP 83
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
QY 52 HR---PLARLRALSG--PCQLWSLTLSVAELGLGYASEKVFYRCAGSPRGARTQHG 106
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 84 RRRAGPRRRRARLRGALRGPCGLRELVRSVSELGLGYASDETFLVRYCAGACEAARV-YD 142
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
QY 107 LALARLQ-----GQRAHGPGCCPRTYTD-VAFLLDRHWRLPOLSAACGCG 154
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 143 LGLRLRQRLRRERVRRAQPCCRPTAYEVSFLDAHSRYHTVHLSARECAC 196
   | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

RESULT 5
NRTN_MOUSE
ID NRTN_MOUSE STANDARD; PRT; 195 AA.
AC P97463;
DT 01-NOV-1997 (Rel. 35, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Neurturin precursor.
GN NRTN.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 96-110; 127-135; 155-177 AND
RP 181-190.
RX MEDLINE=97100947; PubMed=8945474;
RA Kottbauer P.T., Lampe P.A., Heuckeroth R.O., Golden J.P.,
RA Creodon D.J., Johnson E.M. Jr., Milbrandt J.;
RT "Neurturin, a relative of glial-cell-line-derived neurotrophic
RT factor."
RL Nature 384:467-470(1996).
CC -1- FUNCTION: SUPPORTS THE SURVIVAL OF SYMPATHETIC NEURONS IN CULTURE.

```



GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: July 11, 2003, 12:45:18 ; Search time 29 Seconds  
(without alignments)  
1108.391 Million cell updates/sec

Title: US-09-220-617b-217

Perfect score: 839

Sequence: 1 MAVGKFLGSLLLSLQLGQ.....DRHRWRLPQLSAAACGGG 156

Scoring table:

BLOSUM62

Gapop 10.0 , Gapext 0.5

earched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

SPTREMBL\_21.\*

1: sp\_archaea.\*

2: sp\_bacteria.\*

3: sp\_fungi.\*

4: sp\_human.\*

5: sp\_invertebrate.\*

6: sp\_mammal.\*

7: sp\_mhc.\*

8: sp\_organelle.\*

9: sp\_phage.\*

10: sp\_plant.\*

11: sp\_rodent.\*

12: sp\_virus.\*

13: sp\_vertebrate.\*

14: sp\_unclassified.\*

15: sp\_fvirs.\*

16: sp\_bacteriap.\*

17: sp\_archaeap.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result. No.	Score	Query Match	Length	ID	Description
1	244	29.1	220	4	O96030
2	244	29.1	237	4	O95441
3	241.5	28.8	224	11	O920L2
4	189.5	22.6	161	11	O920G0
5	177	21.1	160	6	O97685
6	171	20.4	133	4	O9UD32
7	171	20.4	185	4	O96L44
8	158	18.8	143	13	O80GE9
9	157	18.7	182	13	O9TAM2
10	157	18.7	215	13	O9TAM3
11	154.5	18.4	199	11	O8R485
12	153.5	18.1	235	13	O98TU0
13	143.5	17.1	125	11	O920G3
14	107	12.8	644	13	O90974
15	99	11.8	373	5	O61643
16	99	11.8	678	5	O8WR60

17	95.5	11.4	36	11	O9JMC0
18	91.5	10.9	359	13	O8QG53
19	91.5	10.9	373	13	O90W17
20	90.5	10.8	373	13	O98UB3
21	90.5	10.8	373	13	O9DD18
22	90.5	10.8	373	13	O902D2
23	90.5	10.8	373	13	O902D1
24	89.5	10.7	377	13	O98TB3
25	89	10.6	385	13	O90W05
26	86	10.3	157	9	O94M08
27	85	10.1	443	10	O9S751
28	84.5	10.1	364	13	O9PVK1
29	84.5	10.1	376	13	O98TB4
30	84.5	10.1	376	13	O90WC9
31	84.5	10.1	376	13	O90WC8
32	84.5	10.1	395	13	O9PWG6
33	84	10.0	402	16	O91ZB6
34	83.5	10.0	115	13	O9DGF1
35	83.5	10.0	115	13	O9DGE9
36	83.5	10.0	115	13	O9DGE6
37	83.5	10.0	138	13	O9W6T9
38	83.5	10.0	376	13	O90W06
39	83.5	10.0	393	13	O90261
40	82.5	9.8	305	5	O9VNT8
41	82.5	9.8	389	13	O90YY0
42	82.5	9.8	4498	2	O93HE5
43	82	9.8	370	16	O92YP9
44	82	9.8	1014	2	O9Z4B7
45	82	9.8	1014	2	O9R2G9

#### ALIGNMENTS

RESULT 1

O96030	PRELIMINARY;	PRT;	220 AA.
ID	O96030;		
AC	O96030;		
DC	01-MAY-1999 (TREMREL. 10, Created)		
DT	01-MAY-1999 (TREMREL. 10, Last sequence update)		
DT	01-MAR-2002 (TREMREL. 20, Last annotation update)		
DE	ARTEMIN.		
GN	ARTN OR EVN.		
OS	Homo sapiens (Human).		
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;		
OC	Mammalia; Euthera; Primates; Carnivora; Hominidae; Homo.		
OX	NCBI_TaxID=9606;		
RN	[1]		
RP	SEQUENCE FROM N.A.		
RX	MEDLINE=99098192; PubMed=9883723;		
RA	Baloh R.H., Tansey M.G., Lampe P.A., Fahrner T.J., Enomoto H.,		
RA	Simburger K.S., Leitner M.L., Araki T., Johnson E.M., Jr.,		
RA	Milbrandt J.,		
RT	"Artemin, a novel member of the GDNF ligand family, supports		
RT	peripheral and central neurons and signals through the GFRalpha3-RET		
RT	receptor complex."		
RL	Neuron 21:1291-1302(1998).		
RN	[2]		
RP	SEQUENCE FROM N.A.		
RC	TISSUE=BRAIN;		
RA	Hansen C., Blom N., Johansen T.E.;		
RT	"Neublastin, a novel member of the GDNF ligand family."		
RL	Submitted (JAN-1999) to the EMBL/GenBank/DBJ databases.		
RN	[3]		
RP	SEQUENCE FROM N.A.		
RX	MEDLINE=20050601; PubMed=10583383;		
RA	Masure S., Geerts H., Cik M., Hoesnagel E., Van Den Kieboom G.,		
RA	Tuytelaars A., Harris S., Lesage A.S., Leysen J.E., van der Helm L.,		
RA	Verhaeghe P., Yon J., Gordon R.D.;		
RT	"Enovin, a member of the glial cell-line-derived neurotrophic factor		
RT	(GDNF) family with growth promoting activity on neuronal cells.		
RT	Existence and tissue-specific expression of different splice		
RT	variants."		

Db 173 RARSPHDLASLLGAGALRPPGSRPVSPCCRPTRYEAVSFMDVNSTWRTVDRLSATA 232

Qy 23 GPDARGVPV  
|| : |  
Db 94 GPALQSPPA